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For the Photographer and Kinematographer

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The Work of a University Photographer

ROBERT A. WILLIER

FASCINATING almost as the life of a newsreel cameraman is the life of a university photographer, says J. F. Barham, who speaks from seventeen years of experience as photographer for the University of Missouri. One glance at his pathetic pictures of plucky little tots in the crippled children service of the University Hospitals, as at any of his thousands of other photographs, and the most incredulous person would probably agree with his statement.

If photographing the piteously distorted bodies of these unfortunate children when first they arrive at the hospital, and later during stages of progress toward recovery—if this was all the university photographer had to do, he believes that it alone would be a valuable service and an education. For in this work Barham stands behind his tripod and camera, witnessing many a forced and tearful grin on the faces of youngsters whose whole future depends upon the surgical skill of waiting physicians.

A few days, weeks, or months may pass before they again face his camera. But this time their tragic expressions have changed, miraculously it seems, and he sees through the camera-eye a face filled with determination, expectancy, faith.

These pictures require skill and patience on the part of the photographer. His is the task of cheering the children so that their pictures will be of value to the service. He must forget for the time being the irony of fate that caused him to be the photographer and these helpless little tots the subjects, when the reverse might so easily have been true.

Sometimes it is necessary to make motion-pictures of the children in order to obtain details of progress that could not possibly be illustrated in "still" photographs. Many a heart-rending scene of six- and eight-year-old boys and girls learning to walk for the first time Barham has mechanically cranked into his picture machine—"reel" dramas from real life.

But as mechanically as he makes motion-pictures of crippled children, so Barham shifts his instruments to the football field, basketball court, or cinder path to catch the strength and speed of athletes as they compete in contests for the honor of their *alma mater*. Football action shots are his special delight, and some he has turned out have been widely used in newspapers throughout the country.

When the Missouri football squad trekked out to the West Coast a few years ago, Barham and his motion-picture camera went along to bring back to less fortunate M. U. rooters actual scenes from the thrilling games played there.

He, or one of his assistants, follows the teams almost everywhere they go. They bring back any number of these so-called "thousand word" pictures that tell pictorially what would otherwise take a thousand or so words to describe. Action pictures that show accuracy, precision, determination, and daring tell whole stories to the university collegians, stories that often could never be described in written reports. And, what is more important, these pictures can be preserved for the present college generation to show to their children, and possibly to their grandchildren.

Barham relates a number of experiences that have provided excitement for him during his long sojourn at the University of Missouri. The following episode serves to give some idea as to what the work sometimes involves.

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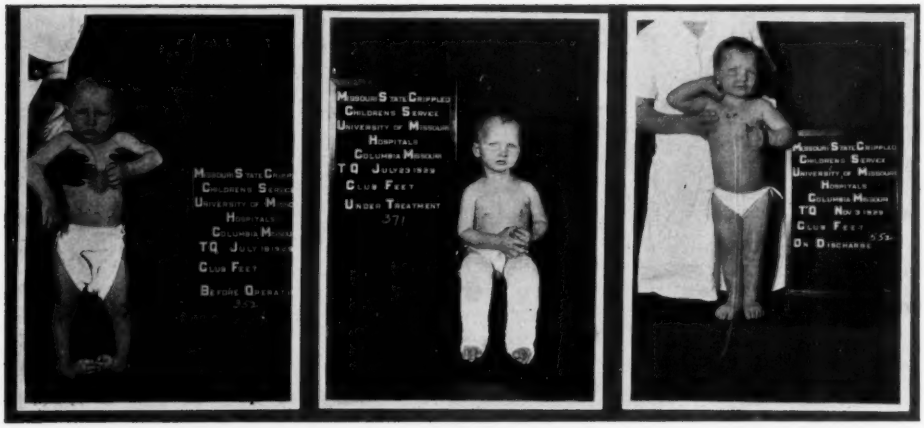


PHOTOGRAPHING A CRIPPLED CHILD — J. F. BARHAM

Soon after his laboratory was established, Barham was one day working away at the rather tedious task of developing some pictures when the door opened and one of the medical professors entered. He deposited a large package, wrapped in brown paper and securely tied, on the table, and asked the photographer to make a picture of its contents.

"Well", to let Barham tell the story in his own words, "I prepared the camera, walked over to the table, picked up the package, and started unwrapping it. You can imagine how I felt when I pulled off the last piece of paper and discovered it was a woman's leg—and still warm. The limb had been amputated on account of a cancer, and the medical men wanted to preserve pictures of this diseased portion for future study. I took the picture all right, but the incident will live a long, long time in my memory."

Another time, Barham recalls, he was asked to make a picture of what is commonly known as the Missouri skunk. This particular one lived on a farm near Columbia. The picture was needed for the agricultural college; so Barham ventured forth on the mission, not a little dubious as to the outcome.

He relied upon the old axiom about discretion being the better part of valor, and made no real attempt to pose this sometimes odoriferous creature. The picture turned out to be a success, especially since Barham did not use the modern inventions of "sound" and "smell" effects that the motion-picture industry today are beginning to use.

Barham was one of the first cameramen in the country to photograph tracer bullets. His pictures of these phosphorescent covered missives speeding through the air on a pitch-black night several years ago were used in the rotogravure sections of newspapers all over the United States. Other photographers have since used Barham's method of making this kind of picture, which involves considerable study and practice.

Famous people from all over the world have been photographed by Barham while they were visiting in Columbia for Journalism Week, Commencement, and other such events that annually draw ambassadors, educators, and representatives of nearly every

PRESIDENT OF THE UNIVERSITY AND JAPANESE GUESTS — J. F. BARHAM

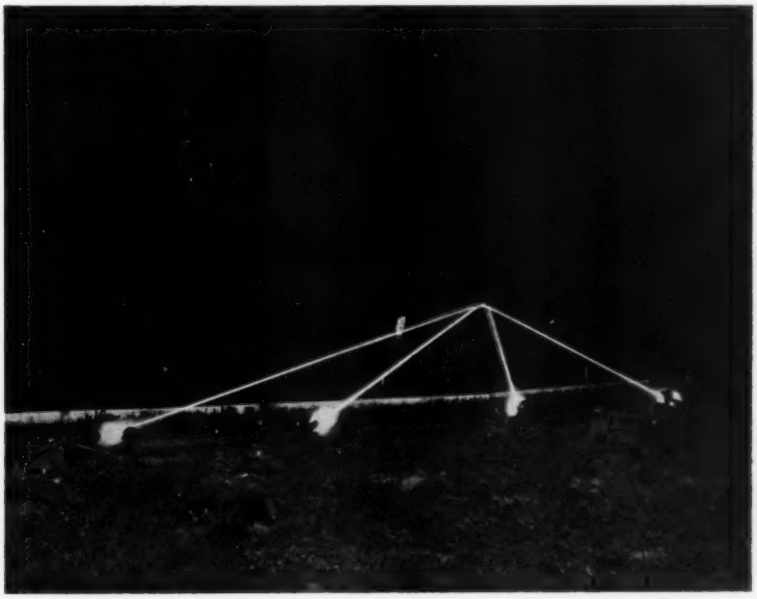
field of life to Missouri's educational center. All these pass before Barham's camera, forming a background of personality and human interest to his pictorial panorama of life.

Nearly 40,000 pictures a year has been the university photographer's best record thus far; but from all indications the present scholastic year will cause this record to be broken and a new one established. The demand has constantly increased for pictures, Barham says, and departments that never before realised the importance of photographic studies now are requesting them in large numbers.

J. F. Barham, a man of near middle age, has been self-supporting since early in life. He worked his way through the University of Missouri by making pictures, and his reputation earned for him a position in the photographer's office of the institution when he was graduated.

So rapidly has the bureau developed under his supervision that today there are two employees in addition to Mr. Barham. The office-studio is equipped with a variety of mechanical devices for picture-making and developing. An interesting fact about the studio is that practically all the equipment has been purchased without assistance from the institution, for which it does nine-tenths of its work. But it is that other one-tenth of the work—done outside the University—that has proved remunerative to such an extent that the bureau of photography has saved money consistently for the State each year.

GENERAL PERSHING AT THE UNIVERSITY OF MISSOURI
J. F. BARHAM



PHOTOGRAPHING TRACER BULLETS AT NIGHT J. F. BARHAM

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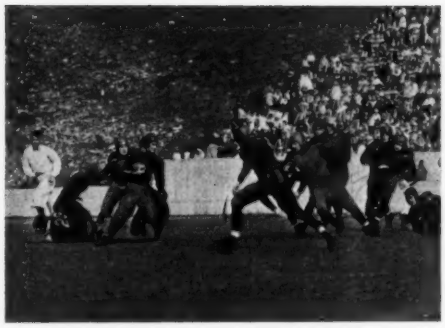
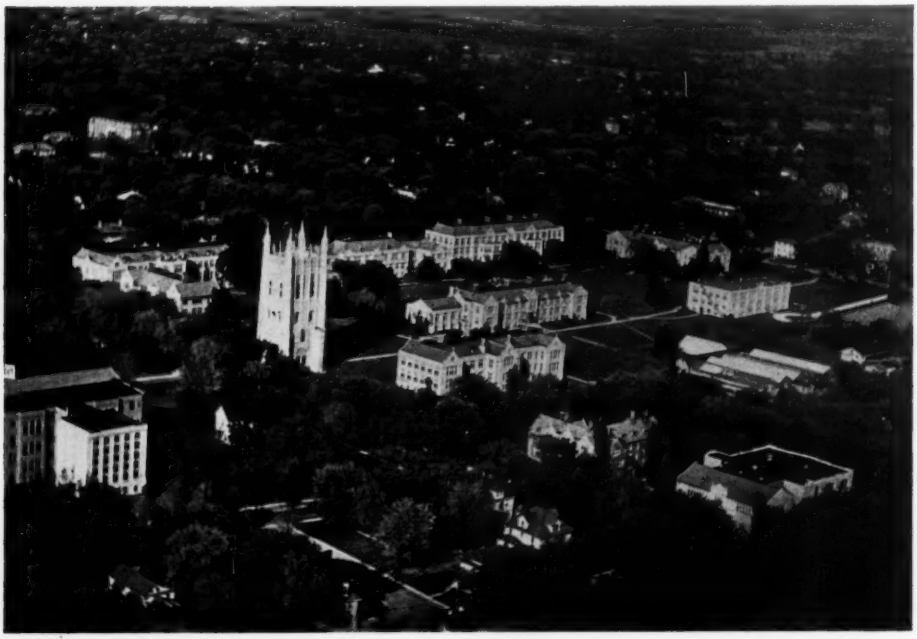
Commercial photography shops in Columbia have never entered strongly into the field of outside work. The pictures they make are mostly studio and formal pictures. When something special happens, therefore, it is not unusual for the university photographer to be called upon to make the pictures. Money received from these is paid through him to a fund in the photography office, there to remain until some new equipment is needed.

Among the machines in the laboratory is a large photostat camera for making pictures of such things as whole pages of newspapers or books. This has proved especially helpful at the University, because the State Historical Society of Missouri is situated in the University Library and any number of old papers and books are sent here. Often they are in such condition that the writing soon would become illegible. Thus they are sent to Mr. Barham to be photostated.

A German-made microscopic camera for making pictures of minute objects is also contained in the laboratory. In more than one instance this has proved valuable for both classroom study of certain organisms and for the preservation of pictures of valuable specimens for later analytical study. The variety of pictures that have been made by this one machine in the laboratory would be an interesting study in itself.



MISSOURI TIGERS IN ACTION J. F. BARHAM



AËRIAL VIEW OF EAST CAMPUS J. F. BARHAM

Other machines included in the equipment are a large drier, automatically controlled lights, cameras of almost every description, and up-to-date machines for developing negatives.

One of the greatest needs of the laboratory, according to Barham, is that of a new camera for pictures made from airplanes. He has made numerous pictures of this nature for the university, and some have been very successful; but he is not satisfied with the results.

Barham would not trade his position with anyone, he says. It combines to such a great extent the qualities of pleasure and work that he is satisfied.

Prejudging Your Salon Entries

WAYNE G. WINCHESTER

ENTERING your favorite prints in photographic salons is really quite a thrilling pastime—if you get "hung". But many fatalities occur between the entry blanks and "hanging". Probably many of you have often desired some kind of yardstick by which to prejudge your entries so that you might eliminate those prints less likely to be accepted, as well as improve the others so as to increase the possibility of their being accepted.

When assisting with preparations for a salon, I placed and removed the prints before the judges, two of whom were photographers of note, and the third a nationally known artist in black and white (cartoonist). As these gentlemen made their decisions, I had an excellent opportunity to study their comments upon the pictures, from which I evolved the following list of sixteen points. Serious violation of one, or more, of these "fundamentals" was the cause, I believe, of practically every actual rejection. Even in selecting the final prints to fill out the exact number for which space for hanging was available, these points largely determined "yes" or "no".

Their observance will not insure hanging for your every entry, but it will, I am confident, increase the number of your acceptances. Even more important, perhaps, it will greatly increase the quality of your photographic work and the satisfaction that will give you. Art is too much an individual expression and thought to set up any absolute rules by which it may be judged. Nor is a slavish observance of these points desirable if the success of a picture depends upon their disregard.

Generally speaking, when prejudging your prints, your answer should be "Yes" to all questions, except No. 2, which should be "No".

1. Do the title and the picture hang together? That is, does the title convey or explain the motive of, or reason for making, the picture?

2. Is the print "spotty"? That is, are there distracting spots of light and dark which draw the eye away from the chief interest of the picture? Spottiness tends to confuse the eye, and obscure the picture, weakening its appeal. (Your answer here should be "No".)

3. Are the edges of the print darker than the middle portion, helping to focus the eye within the bounds of the picture space? Generally, avoid chair and table legs, knees, arms, etc., or any pronounced lines, light or dark, prominently cutting into the edge of the picture, as such lines usually lead the eye out of the picture.

4. Has the picture aërial perspective? That is, is the distance graded into steps of space by means of softness and lightness, near objects being more sharply outlined and darker in tone than objects at greater distances?

5. Does your picture have roundness and depth? Can you reach out and pick up the objects, or walk into the distance?

6. Does your print have good gradation of tone, with detail in the highest lights and deepest shadows?

7. Is the print strong—that is, rightly exposed and correctly developed to give it good brilliance?

8. Is the color of the print in keeping with the subject?

9. Have you avoided distortion, or at least all noticeably disagreeable distortion?

10. Is the composition good? Does the eye seek some portion of the picture and rest

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there, roving calmly over the details, then returning to this point of interest?

11. Is the picture one that your audience will understand and appreciate? The salon is hardly the place for prints that cannot be appreciated by at least some of the attendance.

12. Could you hang the print on the wall of your room and live with it for months without tiring of it?

13. Is it neatly mounted? Is the workmanship clean? Is the mount suitable and unobtrusive, quietly setting off the picture, giving the shadows and highlights heightened interest?

14. Does the print have "feeling"? Does it arouse your emotions; carry you out of yourself; give you something akin to a thrill as you look at it?

15. Does it carry a message? Has it a reason for having been made? A picture is a means to an end. Does it accomplish that end?

16. Is the work technically good?

Stereo Pictures are Fascinating

JAMES ALLEN YOUNG

OF the many divisions into which photographs naturally fall, there is nothing quite so interesting—at least to me—as stereos. I realise at once the possibility of having you criticise me for being "old-fashioned"; but have you ever considered that many things which are old are like our mothers—very dear, lovely, charming, and wonderful to us?

If you delight in making your camera "tell a story", then the stereo, with its twin lenses, will do all that you are now doing with the single-lens camera—and much more. You will now delight your friends with another dimension—with perspective, depth, atmosphere—with a sense of a larger picture than the actual photograph. You will find that those who have enjoyed your pictures will now have a new surprise in store for them—a keener pleasure in your stereos; and those who may not have been much interested in your single views will now begin to take a real interest in your stereos. No other pictures seem to give both young and old half so much enjoyment. They will spend hours in looking them over, and will seem to enjoy them all over again when they come to look at them a second and a third time, whether within a week or two, a few months, or after a year or so.

Illumination on views under good light makes pictures more vivid, more realistic. Details in the shadows are beautiful—you "feel" the sunshine; space seems "real", all filled with air, atmosphere. You seem to get outside of the boundaries of the pictures. You are not aware of any edges to the pictures. Where there is an overhanging bank, you get the rotundity of it. You feel as though you were close to it—closer than in any other pictures.

A whole page could be written on the subject of reflections. Whether buildings or bridges, whether trees or flowers, stone walls, grass, foliage of any kind, reflections are always beautiful and, therefore, interesting. Sometimes it is a boy under a big straw hat, fishing with patience—with or without catching any fish. Drooping willows are lovely, always interesting.

Greater enjoyment comes out of these pictures than any others where people are photographed showing a happy time, smiling or laughing, perhaps picking flowers, playing ball, or eating a picnic lunch. Such pictures bring you back again right in the scene—your memory is more keenly refreshed.

Certain architectural features of buildings stand out more prominently in stereos. Many points might be missed in the ordinary picture; much more is seen and realised in the stereo; therefore, the stereo assists in giving the utmost information.

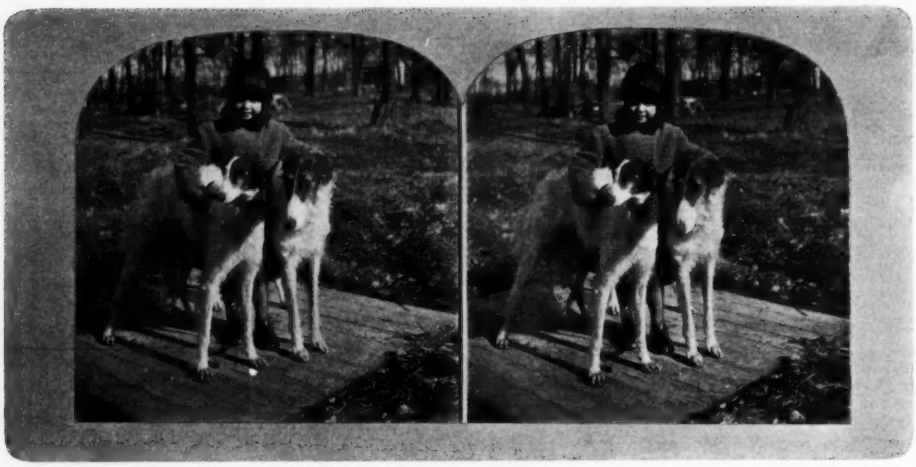
Where a mother is holding her daughter, you seem to feel the close bond of love between them; for the child's arm around the mother's shoulders and the mother's arm holding the little one shows the closeness—the real feeling.

In the distance, of course, you cannot see the "roundness" of the clouds—even the middistance is not so effective as the foreground; but they all blend in to make a lovely picture. Naturally, the foreground is where your greatest study of suitable composition is made and planned.

(Stereo-photograph and mount reproduced full size)

PICKING FLOWERS ALONG THE BANK

JAMES ALLEN YOUNG



HER TWO GUARDIANS — JAMES ALLEN YOUNG

Bathers, while in the water, make fascinating pictures. Sometimes the water is like a sheet of glass; sometimes with a slight roll; oftentimes with ripples from a breeze and with larger waves, even to the extent of whitecaps. Their foam and froth seem to stand up in the air. You can't see much below the surface of the water even when it is perfectly calm. It seems to be mostly shadow underneath and, of course, there is distortion on account of the difference in the media—water and air.

With the stereo, you obtain a truer understanding of what animals and pets are really like, from their expressions and their postures.

If the editor has space he will insert some of the photographs I have sent him. The one with the child in the foreground sitting in some tall grass takes the stereoscope—the instrument with which to view these pictures—to make the scene of keen interest. Another view is where the child is picking flowers—a halt while the camera snaps. One view is where the child is sitting near the river bank with a fisherman doing some real fishing—not posing at all—in the mid-distance. There are overhanging boughs of the trees and the river in the distance. It is near evening. Shall we call it "Meditation"?

Then there's the pony—"her first ride", entitled "Happiness". The boy is holding the pony, although there's no danger. The child with the Russian wolfhounds is between the two dogs, with an arm around each one, thus demonstrating their docility, their fondness for children. Interior views—the child writing a letter to her grandmother sitting like a grown-up at a full-sized desk. Or with her doll in its carriage—"a halt in the outing."

All sorts of pictures can be made: all kinds of views—landscapes, with water, with people; individual figures or groups; animals, both domestic pets and others at the zoo; striking phases of nature; mountains; houses and gardens; flowers, trees, buildings, boats, swimming scenes, costumes, and dances; the Christmas tree at home, with the gifts all piled around it, with the electric lamps on it lighted; the automobile, the playhouse, farm scenes; in the cornfield; the swing, the hammock; picnics; snow scenes of all kinds, with the snow clinging to the limbs of trees, especially the boughs of the evergreens; footsteps in the snow; a group of youngsters on a long sled ready to "slide down hill"; also the skaters, where the ice in the stereo views will show real "texture"—where you sense the "feel" of it and the real difference between ice and snow in this kind of picture; where the water is rough, like rapids or falls, such as Niagara Falls—where the spray or foam stands up straight and yet gives a sen-

sation of motion when the camera shutter has been "snapped" at 1/100 of a second.

You have often heard the expression that the camera does not lie. This is fully true of the stereo pictures—but not so much of other photographs. Even where you would be apt to miss or overlook some parts of an ordinary picture near the edges, where only a part of a subject is visible, still in the stereo you have a better appreciation of what the entire article would look like from the visible portion.

Pictures of dancers, in different positions, are very realistic, so much more effective than many pictures made in other ways. As a rule, the dancers are posed. Where there is movement, such as a horse trotting at an ordinary pace, and you use 1/100-second in exposure, you may discover that the stereo shows the horse with two feet on the ground and the other two feet simply a blur up in the air away from the ground. Even the wheels on a vehicle may show some of the spokes clear, others slightly blurred, even though all are equally in focus. Similarly, in the scene with the fisherman and his rod, you can see the lower part of the rod clearly, because in it at the moment of exposure there was little movement; but in the upper part and nearer the smaller end of the rod, where there was more movement, there is hardly any of it visible, or only a sort of blur. Last, where groups have been made, or even an individual singly—one who has since "passed on", in the stereo you bring that one back very realistically when looking through your stereo pictures, which are always "fascinating".

Stereos should be on glossy paper that may be obtained ready cut as to proper size, so that no trimming is necessary. Used with a special printing frame and two exposures, it is almost as simple as regular printing. Another way is to cut your negatives apart and transpose them—then one printing is sufficient. Either the negatives must be transposed —that is, changed from left to right—or the self-transporting printing frame should be used.

To some people, coloring the photographs makes them more attractive, because a bit more realistic or true to nature; whereas others do not believe that adding color helps in any way. When you have your stereo prints made by a photo-finisher, it naturally adds to the cost—about double ordinary prints; but when you do your own work, there is only a slight additional cost over the single view. The prints are all mounted on cardboard size 3½ x 7 inches of a light or dark gray color.

The cost of a suitable camera may vary with the pocketbook. Some very fine equipments run over one hundred dollars. An excellent camera may be purchased for fifty dollars; but really fine pictures may be made

FISHING AND MEDITATION JAMES ALLEN YOUNG

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with an equipment fitted with single achromatic lenses for a few dollars.

In some of the larger cameras, there is a separation board which, when removed from the outfit, permits it to be used for a full-sized 5 x 7 picture. This kind of equipment, as well as the usual stereo size of camera, produces pictures to be mounted on the 3½ x 7 cards. There are two smaller sizes—both of these require a special stereoscope in which to view the photographs, and these equipments are usually costly. Most people feel that the 3 x 6 pictures are the most satisfactory, and with the film camera that produces this size of picture you will have two excellent outfits in one—because with a cap on one of the lenses you can make single pictures 3¼ x 3¼ in size. Perhaps few will remember that one of the very earliest models of the film Kodaks was made in about this size of 3 x 3. If I remember correctly, before the square picture was made, there was first a circular one with a diameter of about 3 inches.

I wish I could convey to you even a fraction of my own enthusiasm for stereo pictures. If you would enjoy them even half as much as I have, you would begin at once to make stereo pictures, then continue through the autumn and winter, outdoor and indoor, until you had rounded out at least a year of these excellent reminders of your best times. It is an excellent—a wonderful all-year-round hobby.

If your interest in producing pictures has lagged to any degree, you will find it wonderfully renewed; and, if your friends have lost interest in your previous pictures, they will now exclaim in terms very, very satisfying to the heart of the enthusiastic amateur photographer.

How to Inject New Interest in Amateur Photography

A. H. GERBAZ

SOMETHING different in the line of photography always enlivens the interest of the amateur photographer. Doing old things in a new way, and doing new things, are sometimes necessary to inject picture-making interest into the blood of both the beginner and the advanced amateur.

Given a considerable number of picture failures through incorrect exposures, the non-professional's interest in making pictures will drop to near the "quitting point". I have experienced two interest-stimulating things for better or correctly exposed pictures: the first is a good exposure meter, both simple in operation and effective; the second is an efficient and orderly exposure record, a little different from others I have seen.

The most efficient and orderly exposure record that I have ever used is a small index-file box of wood. This box holds several hundred 3 x 5 ruled cards separated by index tabs of the letters of the alphabet. Given at random, my classifications of recorded exposures are as follows: Water—Rivers, Lakes, Waterfalls; Houses and Buildings; Landscapes—Mountains, Sunsets, Moonrise; Snow Scenes; Indoor Portraits, Children, Interiors, Unusual Pictures, General Classifications, and so forth. Sunsets and Snow Scenes are filed within the tab letter "S", a card separating the two classifications. Indoor Portraits are filed under the letter "I", with cards separating other classifications beginning with letter "I". Then there are the cards containing the index of all classifications of exposure records. These cards are filed in the box, either in the back or front of all cards, where they can be picked up most readily.

The working principle of the exposure record cards is simple. At the top of card, or on unruled space, is listed the classification, as Sunsets, or Unusual Pictures; also the number of card of that series. Five columns are made on each of these 3 x 5 cards by drawing vertical lines from top to bottom of ruled space, spaced appropriately for the matter to be written in. At the top of first column, starting from the left, is listed Scene Details; second column, top—Light Conditions; third column, head—Distance of View; fourth column—Exposure; fifth—Remarks. Other side of card can be used for additional information—distance at which focusing lever

is set, use of exposure or distance meter, and so forth.

Starting with the classification of Sunsets, as an example, we write in on the first horizontal line under the first column head: Scene Details—Lake and foreground detail; Light Condition—Part cloudy; Distance of View—Middle and far; Exposure—F/22, 100 sec.; Remarks—Illus. Aug. 1930 *Camera,* Pg. 106. Another example: Scene Details—Independence Highway Road Guards; Light Condition—Sunshine, little or no sky; Distance of View—Close; Exposure F/11, 25 sec.; Remarks—Nov. 9/30, Mid. Aft. Alt. 8500 to 11,500. Only correctly exposed negatives are recorded by me on these cards.

With this method, there is no wasted time in finding correct exposure for this and that scene, under such and such a light condition. These cards are immediately available, with all important records jotted down briefly and compactly within horizontal and vertical lines. A study of these data will inject decidedly new interest in getting better pictures, more so than trial-and-error methods; moreover, the matter written on these cards is easily memorised. With the aid of an exposure meter, one can find further interest in making test exposures of different objects under different conditions, and filing the correct results, or the comparisons, if desired. Tests of different film can also be recorded.

New interest is often injected by devising ways and means to cut down film and print waste. The good picture is the one that has a concentrated point of interest which fills out as much as possible the area of that picture, the rest serving as background, foreground, harmonising or contrasting factors. The average amateur cannot always achieve this happy medium or ideal; however, he can sometimes cut and leave well balanced the chief point of interest on a print or negative, and discard the rest; or he can get several prints from the same negative or print, by cutting the various points of interest —thus achieving several different effects from the same exposure. If desired, these can be enlarged. All this will instruct as well as entertain.

The simplest and most effective way that I have found to do the cutting is by different guide forms cut out from transparent celluloid in sizes 1⅝ x 2½, 3½ x 3½, 2¼ x 3¼, and on up, next to size print that a particular camera makes. Others can be cut in odd sizes and shapes such as 2 x 2, 2½ x 2½, and so forth; moreover, the celluloid forms can be in different size ovals, hearts, and circles, these for cutting prints. To illustrate: Once I made the picture of a girl on a hilltop with my 2½ x 4¼ film camera. As it was, the picture did not fill out the print, giving the subject a too distant view. With a 1⅝ x 2½ form, I obtained a smaller negative which made prints more economical, besides increasing the chief interest of the picture.

The greater the size of print or negative, the more possible sizes into which it can be cut. Forms from the celluloid—or other transparent material will do—should be cut exactly to fit whole size—including margin lines—of normal-sized print or negative.

When it is stormy weather, or one is tired of moving about for pictures to shoot, a good diversion from the ordinary is to copy or make reproductions of photographs and other material within doors. Many a pleasant and interesting hour can be realised by copying group or single photographs on the library table with camera, portrait lens, and aided by an exposure meter.

I have copied, from the close range of portrait lens, clear results of photographs, single ones, or as many as filled the print; also other pictures, even to printed matter where the letters are not too small. The endless variety of copy material ranges from cartoons, photographs, and prints on album leaves, to oil paintings, except when the law prohibits their reproduction. Then one can enlarge the results to original or near original size of photograph or copy material; if necessary, the procedure may be carried further by copying an enlargement, and having the results re-enlarged to original size. I have found it practical, interesting, and economical to reproduce in miniature an old, old photograph of which I wanted a duplicate; after that the miniature was enlarged, recopied, and re-enlarged—thus regaining the original size of the photograph. I thereby obtained renewed interest in amateur photography and had the satisfaction of doing something decidedly different.

The procedure to make reproductions is simple and inexpensive. Set a library table—another will do—length forward against the wall for the camera support; if the table isn't long enough, another support of the same height as the table can be placed against that. An ordinary portrait lens placed in front of the camera lens must be used to get a close-up view to fill out the print with the

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object exposed. It is also necessary to have a good exposure meter for correct exposure, unless one is willing to experiment. A large lens stop should be used to subordinate background to chief object of picture, unless detail and sharpness are desired, when a smaller stop may be used.

The background should be effective, simple, and pleasing. My first background used was the wall paper on the wall, not a pleasing one by any means. Now I mask out the background on the wall with gray or other colors which will photograph well in contrast with the material to be reproduced. One effective method to do this is to secure flush against the wall, in line with camera, a piece of gray wall board, large enough for material space and background. Or, if preferred, other paper with or without designs can be used for background, by being nailed with thumb tacks. Copy material can be set close together, overlapped to give impression of continuity, or space may be left in between for background.

In making these miniature pictures, material to be copied should be placed on the wall together with background, at an angle of ninety degrees with the table and horizontal position of camera. This means that the top and bottom of material to be copied should be exactly the same distance from the camera. The same obtains for extreme left and right sides of copy material; the rest as instructed in use of camera portrait lens. Wherever possible, the prints or photographs should be taken out of the folders, in the arrangement of material to be copied. My celluloid forms help in cutting these miniature pictures preparatory to enlarging—this to eliminate extraneous matter.

There are many other things which will arouse new interest for the amateur photographer. Many of them have been discussed in an interesting way in PHOTO-ERA. No one who is true to his camera need grow tired of making pictures, nor have a forced transfusion of new ideas; the amateur will profit in both dollars and pleasurable hours, if he will but experience, observe, and study.

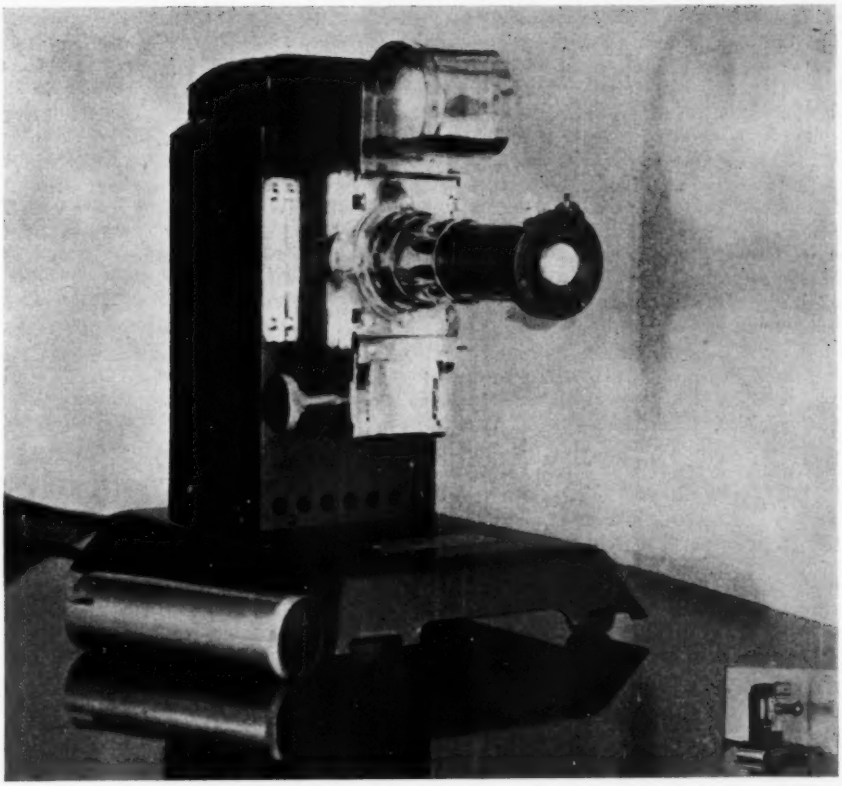
Enlarging the Memo Negative

ERNEST C. HUNT, JR.

SOME years ago the writer abstained from luncheon for a week, and, with the money so saved, purchased a "How-to-Build-It" book. The opening sentence was, "Procure a piece of platinum!" About the same situation is faced when the average owner of a Memo or similar camera feels the urge, possibly for economical reasons, to do his own enlarging. The splendid enlarging apparatus which can be purchased is well worth the price, for the results are well-nigh perfect; but in the writer's case the choice was offered to find a less expensive device giving satisfactory results or—well, let's do some enlarging!

The second-hand markets show practically no suitable enlargers; but projectors for 35-millimeter stills are obtainable for reasonable prices. In the Memoscope Projector we have a light-source, condenser lenses, film-holder, and projector lens in tube, and we can show images on the screen of almost any size, sharply and clearly. This is very beautiful and interesting when positives are projected, and one would expect to get some good enlargements by loading the projector with negatives and substituting sensitive paper for the screen. Unfortunately, the results would be about the fuzziest ever, because the projection lens is not corrected for chemical focus, which means that the invisible but photographically active wave-lengths of light have been ignored in the design of the lens. Its work was meant to be the projection of images to be impressed upon the eye only and, therefore, only those wave-lengths that affect the eye are in sharp focus.

However, all we need to convert the projector to an enlarger is a suitably mounted corrected objective of the right focal length. The conversion can then be made almost instantly and without in any way changing the details of the projection device itself. The distance between paper and lens must be small enough so that one person can comfortably focus very sharply when 5 x 7 enlargements are being made. This eliminates lenses of greater than 3½-inch focal length. In fact, a two-inch lens would be almost ideal,



(Note size of original memo negative in lower right corner)

MEMOSCOPE ENLARGER ADAPTED TO ENLARGING — ERNEST C. HUNT, JR.

but it is difficult to obtain. To save time, the lens should work at a large aperture—F/3.5 is used in the commercial devices—so, as the doctors say, an anastigmat is indicated.

Considerable entertainment was obtained through looking at pieces of platinum—that is, big-aperture ciné lenses in focusing mounts —before the writer made his wants known to his good friends at Willoughby's on 32d Street, New York. A look "down stairs", and a vest-pocket Kodak, apparently stepped upon by an elephant, appeared; but undamaged was the shutter, and a 3½-inch Berthiot Orlor, F/6.8, a fine lens—and the whole for two dollars! The brass mounting tube came from the big hardware store on Park Row in the shadow of the Post Office, and it cost fifteen cents—three inches long, one inch outside diameter, and 16 gauge, so that the jamb-ring on the lens-board would just nicely fit on the end.

Our local automotive electrical expert allowed his lathe to be used to true the ends of the tube, thereby saving considerable hand filing, and also donated a bit of acid core solder to fasten the jamb-ring to the tube. These fellows are all tinkers at heart, and if the project is detailed when they are not too busy, they will gladly give assistance. In return, of course, they have a few photographs made gratis.

The end of the tube was scraped clean, and it was placed vertically on a tin plate over the small burner on the gas range. While it was heating, the jamb-ring was smoked inside, where the threads are, with a candle,

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and the outside of it was scraped clean with a penknife. When the tube was hot enough to just melt the solder when touched to the top edge, the jamb-ring was carefully placed on top of the tube, milled side up, and, after allowing a little time for the whole to heat up, the solder was touched to the joint and it flowed in readily. The flame was extinguished and the work allowed to cool without disturbing, when, upon examination, the jamb-ring was shown to be neatly bonded to the brass tube, square and true. Any solder which might get into the threads would be prevented from sticking by the coating of candle soot.

Now the tube was made to slide smoothly in the Memoscope, in place of the projection lens tube, by the patient application of "elbow grease" and five-zero sand-paper, the latter obtained from the auto-painting shop. The inside of the tube should be given a coat of flat black, to cut down reflections, the shutter attached, and the whole mounted on the Memoscope. The finishing touch was to install a General Electric through switch in the attachment cord, thereby greatly increasing the handiness of the device.

The actual details of enlarging need not be discussed, but a few random hints may not be amiss. Bromide paper is not essential; exposures of from 3 to 30 seconds are sufficient with developing paper. Focusing may be done on the paper by inserting a piece of orange safelight between condenser and negative, removing it, of course, during the exposure. The paper can be supported in any number of ways; one of the writer's ingenious friends fastens the paper to a piece of glass plate with a daub of household rubber cement. The cement is instantly removed after exposure by a rub with a damp cloth. An almost ideal bench for our enlarging outfit is wasting most of its time as the spare leaf for the dining-room table.

The enlargement of about sixty-five times may help explain some details. It was made with wide-open lens, but, because the negative is not held between glass, it warps a trifle, and sharper results, if necessary, are obtainable by stopping down.

It is at once apparent that the usual tray development will not produce negatives satisfactory for enlarging. Every minute scratch and injury is mercilessly magnified and paraded right down in front. The strip of film must be developed, fixed, and washed without handling or curling. We have worked out a method for accomplishing this, with low first cost and economical procedure, that at the same time does not rob one of the pleasure of watching the images form. You will hear more of this later.

A Camera: (Its Definition)

CAMERA: An apparatus which, when used by one understanding its intricacies, its capabilities, its deficiencies, its peculiarities, and its inherent properties for absorbing punishment, can be used to register, record, create, or make a likeness or rendition of that at which or the person at whom it was directed. Person using this apparatus should have a thorough education in mathematics, light and shade, chemistry, painting, and art in general; he or she should have common sense, be even-tempered, farsighted, shortsighted, as well as be in possession of normal vision. By using this apparatus one may acquire and retain the respect, compliments, and enmity of many people. A user of this apparatus should remember, however, he must use it as *his* mind prompts, for if the operator uses the same technique as another he could not become an authority in its use, neither could he be proficient in its use, nor could he call himself an artist; he would merely be attempting to reproduce something which another's artistic mind had created with the result that this would no longer be art. The greater criticism one is subjected to and the greater the user of this apparatus flagrantly violates the accepted methods, theories, traditions and standards of art, the greater artist he will become in his own name, through the use of this apparatus defined "Camera".

LADIS A. LISY.

THE illusion that times that were are better than those that are has probably pervaded all ages.

HORACE GREELEY.

An Ideal All-Purpose Camera

R. FRANKLIN HALL

JUST after the World War, I entered the field as a free-lance writer and also as a free-lance photographer. In the first-named I had some success, but absolutely none in the latter. My photographs all came back. Some editors were kind enough to tell me the trouble—pictures too small, not enough contrast, not sharp and clear,

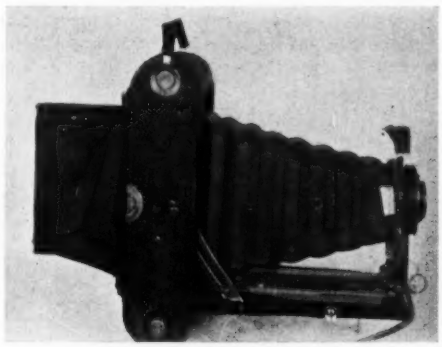

FIGURE 1 R. FRANKLIN HALL

Camera with focusing hood open and bellows extended to about 12 inches

were the complaints. Most of them, though, said that they could not use photographs smaller than 4 x 5.

I was using a 3¼ x 4¼ Graflex and thought it the king bee. But my prints wouldn't sell; so I immediately cast about to rectify such a discouraging condition of affairs. My first thought was to purchase a new 5 x 7 view. A casual inquiry at a camera supply house, and I dropped this idea at once—$130. There was nothing left except the pawn shops, and there I went.

I didn't tell the owner, in the first one of these I went into, that I wanted a camera. Finally, seeing that I was not going to buy, he left me alone, and I pawed casually over the pile of pawned Kodaks. Nothing turned up that looked anything like a 4 x 5 or 5 x 7, and I was leaving when I happened to spy a unusually large Kodak in the bottom of a show case. It was in a leather case, which was in excellent condition, and I asked Cohen to let me have a look at it.

Really, I wouldn't have asked regarding it, except that it was so large for a Kodak that my curiosity was excited. Thoughts of purchasing it did not occur to me. Unsnapping the clasp, I pulled the huge implement out. The instant I dropped the front, the fact was apparent that it was no ordinary Kodak. A hasty glance showed the lens to be a Turner-Reich Convertible, F/6.8, in a Compound shutter. With the back removed, I saw that it used rollfilm of large size. It was in perfect condition throughout, and I asked Cohen what he would take for it. He said twenty dollars. The lens, alone, I knew would sell for about seventy-five dollars; so I told him that, on account of the fact that film could probably not be purchased for it, I would give ten dollars. At this he dug around and found a combination back and six 4¼ x 6½ plateholders which he said went with the camera, and offered the whole outfit for fifteen dollars. Well, I got it finally for $12.50, the best purchase I ever made.

I hastened by a camera store, where they told me the Kodak was an Eastman Folding Kodak, Model B; that its manufacture had been discontinued about 1910, and that it used No. 126 film (4¼ x 6½) which could be procured at any camera store. I was beginning to like my camera. Two rolls of film were purchased, and I went home to try it.

Once there I tested the shutter, looked at the bellows—which was of red leather, and

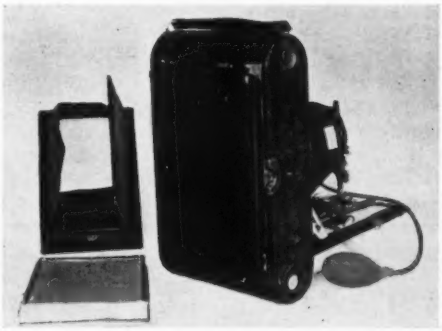

FIGURE 2 R. FRANKLIN HALL

4¼ x 6½ plate or film-holder in place and 5 x 7 filmpack adapter and focusing hood to left

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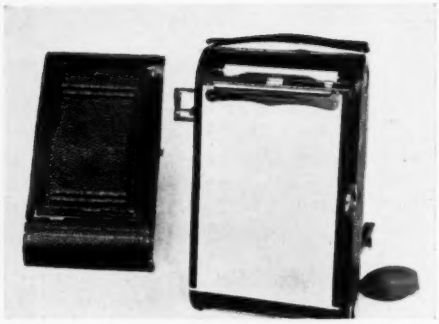

FIGURE 3 R. FRANKLIN HALL

5 x 7 filmpack adapter on camera and entire combination back shown to left

in perfect condition—carefully focused the 7½-inch lens, marked its settings, and was ready to go. That afternoon I used one roll of six photographs of various subjects and ran them through the developing tank. I was greatly pleased with the great size, as well as the sparkle and brilliancy, of the films when I hung them up to dry.

By night the films were dry, and I printed one of them on some glossy paper. Pulling the photograph out of the hypo, I walked to the light and looked it over. Now, I am a rather staid old fellow, not given to outbursts of emotion; but when I got a good view of that print, I hopped into the air, as I saw one of Buffalo Bill's Indians do once, and let out a screech. This strange noise from her kitchen brought "wifey" on a run. "My goodness, what in the world is the matter?" she asked, in a frightened manner.

"Look at that, honey!" says I, shoving the print at her. "Look it over!" "Well", she replies after a moment, "it looks like a good picture of a house. But what did you shriek about?"

I mumbled something about stepping on a tack and led her off the subject. Fact of the matter was I had intended that screech for a genuine war-whoop, but didn't tune up for it properly. But brother, I wish you could have seen that photograph! Talk about your sparkle and snap—it had it! All the exposures had been snapshots, too. Yes, I was beginning to like my camera!

Next day I tried it out with four panchromatic plates and a K-1 filter. With these, of course, I used the combination back, focusing two of them on the groundglass and the other two by means of the reflecting finder. The resulting prints were not quite so brilliant as those made on the film without a filter; but the way details came out under that K-1 almost tickled me to death. Up to now, all tests with the camera had been more than pleasing; but I was yet to receive a real surprise. This surprise was connected with the convertible feature of the lens. I didn't know how it could be utilised on a Kodak bellows draw. Another camera with facilities for greater extension seemed the only way out.

Slipping on the combination back, the camera was placed on a tripod and the front element of the lens removed. Racking the bellows to its fullest extension—14¼-inches, I snapped open the hood on the back. "Snapped" is an apt term, for all that is necessary to open it is to press a small catch and it extends to the rear like the hood of a Graflex. I was very sure that the extension was not long enough to bring the lens in focus; so when I looked through, or rather on the groundglass, and saw it blurred, I was not greatly disappointed. I took hold of the racking pinion and tried to push the front out a little more; but it did not go. It was at its maximum. Then, quite by accident, I racked it toward the rear and—just saved myself from another war-whoop. When the front came back about half an inch, a large, brilliant image broke on the groundglass with such startling vividness that it almost knocked me down. "Focus!" I hissed. "Ye gods, she's in focus, with nearly an inch to spare!"

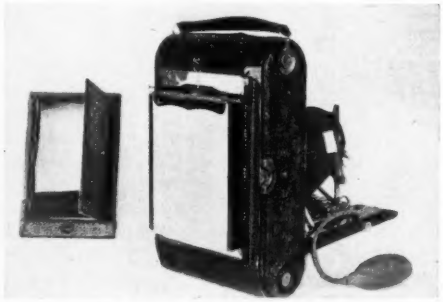

FIGURE 4 R. FRANKLIN HALL

Showing 4 x 5 filmpack adapter in place and focusing hood to the left

Looking carefully about I first ascertained that there was no one in sight, then executed a real war-dance around and around that tripod! That evening, when I went to bed, I placed the camera where I could put my hand on it through the night. It had now fulfilled *all* my requirements for free-lance photography, and I determined to see what else it could do. The only two things left I could think of that were needed in an all-purpose camera was ability to photograph objects life-size and to make pictures on smaller-sized film in order to lessen the expense. The first of these requirements was attained by placing an Eastman Portrait Attachment over the lens. With this on, and the bellows racked to its fullest extent, objects were magnified to about one-and-a-half natural size, which has proved ample for all purposes.

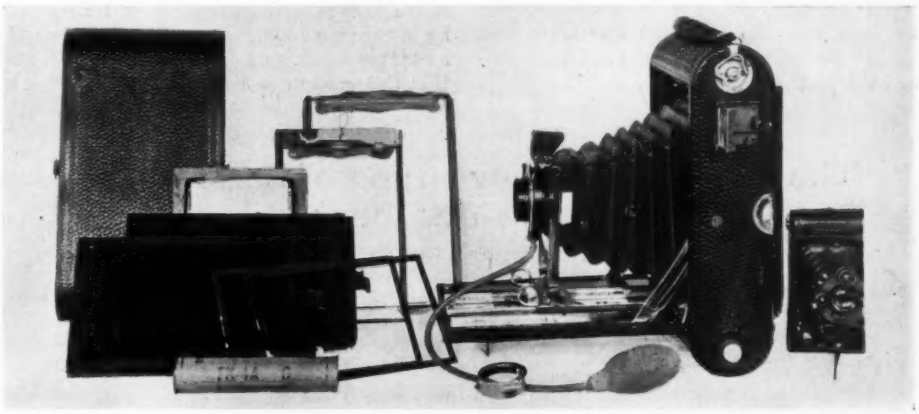

FIGURE 5 R. FRANKLIN HALL

The complete outfit, vest-pocket camera shown for comparative size

The question of smaller-sized film was managed about as easily. The groundglass and its hood is detachable from the camera; so that, after focusing, it may be slipped out and the plateholder inserted in the same place. Taking this groundglass attachment as a model, I cut a piece from a tobacco box the same size—it happened to be of the right thickness—and made it into a filmpack adapter. A 3¼ x 5½ filmpack adapter was purchased, a square hole that size cut in the tobacco-box board, the adapter carefully glued to it, and I had a postcard camera. A rectangular square was drawn on the groundglass to coincide with this 3A size, and that's all there was to it. It works perfectly, too.

Any filmpack, of course, could be adapted to the camera in like manner. Later a friend gave me a 5 x 7 filmpack adapter. I saw no immediate use of the thing, but took it home. It then occurred to me that it would be fine to use when some big news-event came off that required several photographs in rapid succession. Again I had recourse to my big Kodak. Taking off the entire back, I found to my absolute astonishment that the adapter exactly and precisely fit into the back of the camera; all that was needed was a clip on each side, like those on the regular back, to snap into the places made for them. With a pair of tin snips, these were soon provided. Three small screws fastened them on, a black strip of felt was glued around the face of the adapter, and I tried it out with a filmpack. Again the results were perfect.

Up to now I reversed the groundglass in its holder when using filmpacks. With the ground face of the glass toward the lens, it was correct for plates; but it had to be turned with this face to the rear to be in sharp focus for film. I resolved to rectify this inconvenience.

Consulting a friend at the photo-supply house, I discovered that Eastman made a small frame to fit inside the plateholders so that they would hold cut film. The house, by a lucky chance, had a couple of dozen on hand, and I purchased them. A package of

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"ortho" film was also obtained at the same time. So successful were results on this kind of film that practically no other kind has since been used. Using cut film, focusing on the groundglass is correct for both filmholders and packs.

The camera has a regular Kodak back to use with rollfilm. But this I never bother with. A hole was cut in the upper left end of the combination back, a red piece of celluloid was glued over it, and the one back is used for all kinds of film, plates, and packs. If at any time I happen to be using the rollfilm and events happen for which plates must be used, the film is rolled up—after first noting the number through the red window—and the plateholder inserted.

The bed of the big camera is so arranged that it can be tilted upward for high buildings or dropped completely down for a wide-angle lens. The front swings far to the right and left, as well as rising and falling. There are only two things that my 5 x 7 Eastman View can do that this camera is incapable of doing —extreme bellows extension and revolving back. The latter can be compensated for by turning the camera on its side, and the first by using a portrait attachment.

There is probably no camera in the world that has broken into print as much as has this one. You have all looked at its photographs time and time again. Photographs turned out by it have been syndicated up and down and across the earth. And don't you agree with me that this camera is about ideal?

The Photographic Adventures of Bert and Ray

XXVIII—That Thing Halation

NEIL WAYNE NORTHEY

BERT and Ray sauntered into the Harley Photo Supply Shop to purchase some photographic materials just as Mr. Harley was delivering a batch of finished prints to a customer. Evidently the customer was a new hand in photography and had not taken up the interesting work of doing his own finishing.

He slipped the prints from their envelope at once and began to examine them, just as every camera enthusiast does, eager to see the results of his exposures. It was plain to be seen that he was disappointed with the very first one, and the others did not seem to help matters.

"Is there something wrong with the finishing?" inquired Mr. Harley, fearing that a mistake might have been made by one of his employees.

"The finishing is perfectly satisfactory", said the customer. "But just look at that print!"

Mr. Harley took the print and examined it. It was an interior view, evidently of the customer's home, in which there appeared two badly fogged windows. Mr. Harley examined another print. It was an attempt at at-home portraiture at night, in which a reading-lamp and a fire in an open hearth had been used to furnish the illumination—each showing a large patch of halation around it.

"You seem to have run into an unusual number of subjects in this roll of film in which halation was a factor", observed Mr. Harley.

"It looks like it", said the customer. "I wonder what causes halation, and if there is any way of getting away from it."

"Perhaps I can offer some suggestions that might be helpful, if you will excuse me a moment while I wait on these boys", said Mr. Harley.

Bert and Ray sensed an opportunity to obtain some valuable information which would help them in their own work. Mr. Harley operated his store on the theory that helping camera-users to make better pictures kept their interest alive and thereby created a demand for more photographic goods. Therefore he never missed an opportunity to give worth-while advice—a fact which Bert and Ray well knew from their own experience.

"Go ahead, Mr. Harley", said Ray. "We're in no hurry, and we'll listen in if you don't care."

"Glad to have you", said Mr. Harley. "And if you have any questions, don't be afraid to ask them as we go along. And by the way, I wonder if you boys are acquainted with Bob Brooks here. Bob is getting to be

quite a camera fan, and you might get him to accompany you on some of your monthly 'camera-day' jaunts. Bob, this is Ray Wentworth and Bert Easton."

Introductions being over, Mr. Farley sold a waiting customer a supply of M. Q. developer in tubes, and then returned to the subject of halation.

"We usually think of halation as being of two kinds", he began, "each produced by a different condition. The first, and no doubt the most common and troublesome, kind met in ordinary photography is caused by reflection. The rays of light from an object, after being converged by the lens, meet in sharp focus on the emulsion, after which, if they are not stopped by the emulsion, some of them cross and continue on to the back surface of the film or glass which forms the support for the emulsion. Here they are reflected back again, striking the emulsion from the back over a wider area, caused by their spreading, thus not only exposing film which should not be affected, but also double-exposing, as it were, certain portions of the emulsion by the rays returning through almost the same area in the emulsion as where they entered, because the refraction of the rays in the center of the area does not spread them enough to enable them to reach outside it.

"I think you can readily see that the thicker the support for the emulsion is, the greater will be the refraction and the more will be the halation. For that reason, halation is worse in ordinary glass plates than it is in films.

"Then there is the other kind of halation, which is known as irradiation. The emulsion itself is a translucent medium made up of minute particles of sensitive silver salts, or halides. Obviously, these are bound to reflect a certain amount of light and scatter it sidewise in the emulsion, thus exposing others in close proximity. The result is that where a very light object and a very dark one meet in a view, instead of there being a sharply defined line between them, the white is likely to spread laterally in the emulsion and infringe on the black next to it, giving a fuzzy margin to the dark object and spoiling detail.

"Of course, what you want to know is how to *overcome* halation. It isn't possible to eliminate it entirely, but there are ways of avoiding it enough so that it is not objectionable. A little halation is desirable in some cases, such as in tree tops against the sky, because in reality it appears in nature.

"Sometimes halation can be eliminated by simply avoiding the source of it, such as using care not to make the exposure toward a window, or not to include a strong, unscreened light in the view."

"But what can be done when it is impossible to avoid exposing directly toward a window, such as in those interiors I made?" asked Bob.

"In most cases the shades can be pulled, or the windows can be covered, while the main exposure of the interior is made, using a flash light back of the camera for illumination, if necessary", replied Mr. Harley. "After the main exposure has been made, the windows can be uncovered and another short exposure given to obtain detail in the windows or the outside view seen through them. Usually the lights in the room can be turned on if they are not too near the front of the lens.

"Another precaution is to use films, if possible; and if not, to use plates which are either backed with a light-absorbing coat, or which are double-coated on the emulsion side, one coat of which is usually slow and the other fast."

"It seems to me that the new Plenachrome film and Verichrome film should be about the best to use in eliminating halation, since they not only give the advantage of film thinness, but are backed as well", said Ray.

"Yes, and are twice as fast as ordinary film", added Mr. Harley. "That permits the use of a filter, which in itself helps to equalise the light and reduce halation, without greatly increasing the exposure time.

"Another means of controlling halation is by special development. The aim is to use a diluted developer containing just enough accelerator to enable the developer to act. Of course, you know that the work of the sodium carbonate in a developer is to open the emulsion so the developer can act. By reducing it to a minimum, the action of the developer is slowed so that it works evenly on the entire negative instead of permitting the overexposed parts to race ahead and produce halation. A good developer for the purpose is hydro-metol, for the reason that it does not discolor and stain the negative, even though development is prolonged to an hour or more in extreme cases. When such development is employed, the exposure should be two or even three times normal.

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"There is another factor which controls halation considerably, and that is the size of the stop used. We might think of the light rays passing through the opening in the diaphragm and reaching the negative at a point as being the shape of a funnel, with the top representing the diaphragm opening and the bottom the point that is in focus on the negative. If we reduce the size of the top, the sides will be at less of an angle. In the same way, if we reduce the size of the stop, the light rays will travel to the plate at less of an angle, or, in other words, the cones of light as represented by the funnel will be narrower; and as they reach the plate at less of an angle, the reflection will be reduced and there will be less spreading of light.

"For the same reason, it appears that the farther from the center of the negative we go, the more the halation will be increased, seeing that the light reaches the edges of the plate at more of an angle and would be reflected back at more of an angle."

"Then in the exact center of the plate there should be no halation if that theory holds, inasmuch as the light would be reflected straight back, if at all", said Bert.

"That would probably be true if it were not for irradiation", said Mr. Harley. "And then, again, halation might be caused by the spreading of light from aberration in an uncorrected lens, or blemishes in the glass; or the surface might be covered with dust or moisture, or the surface might be dulled or scratched by careless cleaning.

"After everything has been done that can be done to avoid halation in exposure and to correct it in development, there is still a chance to improve negatives in which it appears by the use of local reduction. Sometimes this can be done sufficiently by holding a piece of chamois over a finger, moistening it with wood alcohol, and rubbing the too-dense part. And then again, the affected parts can be reduced by applying a very diluted reducer with a small, soft brush, after first soaking the negative.

"Sometimes the quickest and best way is to make an enlargement, tone down the patches of halation and the obtrusive highlights with a pencil, and then copy the doctored enlargement."

"You mentioned that the lens, or defects in it, might cause halation. How can one tell whether it is the lens or something else?" asked Bert.

"By examining the negative before it is fixed", replied Mr. Harley. "If the halation is caused by back reflection, it can be seen on the back of the negative. But if it is caused by the lens, it will appear on the front surface of the emulsion and will not be so deep seated."

"Well, I'm glad I happened around at the right moment to hear what Mr. Harley had to say", said Ray.

"I, too", said Bert. "And glad to have met you—I'll call you Bob if it's all right."

"Sure thing!" replied Bob. "And what about these 'camera day' jaunts Mr. Harley mentioned?"

"Ray and I have set aside the first Sunday of every month as 'camera day', and devote the day to some kind of photographic activity, rain or shine. Of course, we do lots of camera work between times, but that's one day we never miss for any reason. Tomorrow happens to be it, and we came here to stock up a bit in readiness for the jamboree. We have a workroom in the basement of Ray's home, and had planned that tomorrow we would spend the day going through our negatives and doctoring up the sick ones a bit. How'd you like to bring yours over and join us? For one thing you might try your hand at reducing the halation on that batch you have there."

"Yeh, come on over", urged Ray. "You don't need to bring a thing but your negatives, as we have plenty of everything to work with, and you're welcome to use it."

"Your offer is too good to turn down", said Bob. "What's the address?"

"It's 242 San Lucas Street", said Ray. "And if the little red light isn't burning above the basement door when you arrive, come right on down without knocking. We use the red light as a warning to others not to open the door when we have sensitive material uncovered."

"I'll be there", said Bob. "At about what time?"

"Oh, say nine o'clock, if that isn't too early."

And, being badly bitten by the camera bug, Bob would have said, "Late enough", even though the time set had been two hours earlier.

(To be continued)

We often waste more time getting around to doing our disagreeable tasks than it would take to do them. *Contact.*

THE TOWER STEPS
WM. O. YATES
HONORABLE MENTION—OUR MONTHLY COMPETITION

Tricks in Copying

ROBERT G. CLARK

TUCKED away in some odd corner of the house, you or some member of your family probably has a cherished daguerreotype, or possibly a tintype or two. These old photographs, valued more and more as the years go by, are nearly, if not quite, as sharp and clear in detail as can be made with the most modern equipment.

Why not get them out and make copies of them? With a little care, you can achieve results that will surprise yourself, and will astonish aunts or uncles, grandfathers or grandmothers, who remember the sitters' faces. Copying is one of the simplest photographic processes, and can be carried on by the fireside when blizzards or drizzling rains make outdoor photography impossible.

No special equipment is required; any camera with sufficient extension to be used about a foot and a half from the picture to be copied will be satisfactory in most cases. Good work can be done with a Kodak with a combination back and portrait attachment; a groundglass for focusing is, of course, essential.

If your camera cannot readily be adapted for this sort of work—some rollfilm cameras have hinged backs and cannot easily be fitted with groundglass and plate-holder—you can pick up a suitable used camera equipped with a rapid rectilinear lens at a moderate price. It makes no difference if the shutter has slowed down; all you need is a lens, a box with sufficient extension, and a means of holding plate or film and groundglass.

The kitchen table, or the dining-room table, if one's wife doesn't object too strenuously, are as convenient as anywhere to set up the apparatus. A book end makes an ideal easel if the picture to be copied is not too large. One or two-hundred-watt lights mounted in student or bedroom lamps will furnish sufficient illumination.

Set up the daguerreotype; place the lamps about a foot away and slightly above the picture, or have one on each side; adjust them until you get the brightest and most evenly illuminated image in the groundglass, and try an exposure of ten seconds at F/8. The result will probably be a negative clear in detail and of the proper density, but of a low degree of contrast. With the proper choice of print paper and developer, it should be possible to make a pleasing print.

COPY OF OLD DAGUERREOTYPE
ROBERT G. CLARK

The degree of contrast in the print depends upon four things: the type of plate of film used, the formula used to develop the film, the grade of print paper used, and the formula used in the print developer. If contrast is emphasised in every one of these things, a satisfactory copy can be made of a picture faded almost beyond recognition.

There is a type of film put out by Eastman, and some other companies, known as Process film; to the best of my knowledge, this is the most contrasty film manufactured. It is ideal for copying line drawings in black and white, pages of manuscripts, and for other purposes in which a print with no half-tones is desired. It should be used only as a last resort for copying pictures, as its range of tones between black and white is so short that it is seldom possible to produce first-class results with it. The various press films have greater contrast than the average commercial or por-

trait film and may be used to advantage in copying faded pictures.

Certain developers increase the contrast in any film. Amidol is better for developing negatives that are likely to be flat than pyro or hydroquinone, especially if development is carefully watched, and stopped before the surface haloids have been reduced. This developer has the unique property of working from the bottom of the emulsion toward the surface; and it is not necessary to wait until the entire picture begins to darken before stopping development. Developer formulas calling for the use of potassium bromide will yield negatives of greater contrast if the amount of bromide is increased, but the development time will also have to be increased.

The use of the various grades of print paper is an old story. The familiar Azo and Velox are now manufactured in five grades, and Number Five may sometimes make a satisfactory picture when other grades fail. The addition of potassium bromide to elon-hydroquinone developer—Eastman M-Q or Nepera solution—will increase contrast; but too much cannot be used, or the pictures will take on a brownish cast. The bromide retards developer action, and exposure and development time should both be increased when it is added. There are a number of formulas for producing prints of more than usual contrast; the best plan is to consult your photographic dealer. He will recommend a developer that can be made from chemicals which he has in stock.

Occasionally it may be desired to copy colored pictures or blueprints. This can be done handily with the right filter and film. For a blueprint, use panchromatic film and a red or orange filter. By stopping the blue light, you can produce a negative that will yield prints as contrasty as can be desired. Good copies of pictures in other colors can be made by using a filter complementary to the color which it is desired to show as black in the copy.

In copying large pictures or drawings, care should be used to have the illumination as even as possible. Sometimes an otherwise good copy of a drawing will be ruined because a single black or white line comes through gray, owing to the fact that it reflected more or less light than the rest of the picture. Always have plenty of light—it is almost impossible to focus the camera accurately unless the image on the groundglass is reasonably bright.

The Profit in Photography

J. E. BULLARD

THE standard price for syndicated photographs, stated the speaker at a camera club meeting, "is three dollars; but, if it is a picture that newspapers and magazines want enough, there is no limit to the price. The highest price I recall at the present time is $1,000 for the first print sold. This sale was followed by sales to a majority of the newspapers in this country and to many magazines."

Right then and there a number of those present began to consider seriously quitting the jobs that were bringing in their daily bread and devoting their entire time to photography. It was so easy to figure out the extraordinarily large incomes they could earn that it surely did seem foolish to continue to work for a paltry salary.

Men and women of more or less experience in photography and with a greater or less degree of skill are always entering the business of making and syndicating photographs. Some of their efforts are most certainly pitiable. They haven't a ghost of a chance from the start. Yet they may have given up good positions to try out the venture.

To make a profit out of photography, one must make a business of it. To be sure, it does not necessarily have to be his sole business; but he must make a very careful study of the markets and what is needed, must know how to get the photographs that will sell, and must come to realise that he is in competition with thousands of other photographers who are also trying to make their cameras bring them a livelihood. Perhaps in no other field is the competition so keen. A delay of even a few minutes in getting news photographs to their markets may mean a lost sale.

During the course of a year, a person may

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receive quite a little money from photographs that he sells. Whether any of this money is net profit is an entirely different matter. There are several costs that enter in and have to be met.

To take an extreme case, let us suppose that the amateur photographer has been given all his lenses, cameras, and other photographic equipment as a present. It has not cost him a cent; so he does not have to consider any return on the investment. He does all his photographic work in the bathroom; so no additional floor space is required on account of his photographic work. He decides to make money with this equipment.

There are several courses open to him. He can do home portraiture work, commercial work, news work, or some other line of work. He picks out the line. Suppose it is making photographs that will sell to newspapers and magazines.

The first thing he does is to study the pictures that are now being used by the newspapers and magazines. He spends his nights, holidays, and Sundays at photographic work. He travels around to get the pictures he wants. Then he makes the very best 8 by 10 glossy enlargements of which he is capable. He starts sending out the pictures.

It is not long before he realises that his postage bill is far higher than he had expected. Also, there is a good deal of bookkeeping to do in order to keep track of the pictures that are out. The best that he can do is to sell prints from only about one out of every ten negatives he makes. Then he starts in figuring.

He sets down the cost of the envelopes in which the prints are mailed. Two are required for each mailing. One is the outgoing envelope and the other the self-addressed and postage-paid return envelope. He has to use an order form in each outgoing envelope, and this he has had printed. He reckons up the number of hours he spends getting the pictures in the first place, and then the cost of time and material to finish the prints. In the end he finds that unless he can get much better returns than he has in the past, he will not be able to make a very good living, even though he works the full twenty-four hours a day, despite the fact that, in order to make more sales, he has been offering his prints at two dollars each instead of three dollars.

He begins to wonder how such men as Armstrong Roberts and Wallace Nutting ever got their start. The answer, of course, is that these men have made a real business of photography. They know what will sell, they know where and how to get the pictures that will sell, and they know where to sell them.

One of the first things that has to be learned in making a profit from photography is exactly what will appeal to those who buy photographs. This holds true, regardless of the type of photography that is taken up. This information usually has to be gained through experience and study. One may examine the photographs that someone else is making and selling, get all the information possible from this person, and still fail to sell any great quantity of his own production. The reason is that he has been imitating someone else, and, although the original work sells readily, the imitations fail to sell. Buyers prefer the original work.

Before anyone can establish a reputation for himself that creates a demand for his photography, he must express an individuality in his pictures, an originality that stamps them as his, and which at the same time has an appeal for the buyer. This is no easy thing to do. However, there is something about an Armstrong Roberts photograph or a Wallace Nutting photograph that leads one to know who made the picture before looking at the signature. Very much the same is true of all photographic workers who have gained fame or a good livelihood from their pictures.

Every newspaper and every magazine editor has within reach photographers who can do expert work, men who can make good pictures. This means that to compete successfully it is necessary to do really exceptional work. Exceptional work always brings exceptional returns, and it is from this kind of work that the photographic worker who takes up photography as a side line can expect the most satisfactory returns.

It does not matter what branch of photography he takes up—the facts do not change. If one would make some extra money at portrait work, let him introduce some pleasing originality into the work; let him make photographs of people in such a way that the portraits will be different, so different that they at once suggest that no ordinary photographer made them. Then let him make adequate charges for his work, and he will begin to make real profit.

One of the great errors that nearly every amateur makes when he starts to sell his work is to estimate the cost too low. It is a fact, however, that one who is not making a

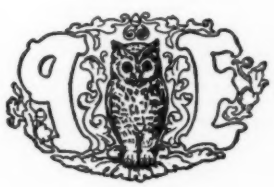
business of photography cannot do the work at as low a cost as the professional who is making a business of it and is making photographs all the time. It is the same here as it is in the production of anything else. Airplane engineers tell us that when the production of planes increases to the extent that automatic machinery can be used in their manufacture, to the same degree that it is used in making automobiles, then the selling prices of planes will drop to about one-tenth of the present prices.

Though it does not cost the amateur ten times as much to do photographic work as it does the professional, the costs every step of the way are higher. He pays more for his materials because he buys them in smaller quantities. He uses more chemicals in finishing than the professional because he rarely has enough work, so that he can use each solution till it is exhausted. He is likely to spend more time in making each negative, both because it takes longer for him to gather together and set up his equipment and because he is not able to schedule his picture-making trips in such a manner as to get as many salable pictures. He wastes more negatives, as a rule, because he does not make enough exposures to be sure of the results before the negative is developed. Therefore, whereas an experienced newspaper photographer will make every exposure count, will be quite certain of his results before he starts developing in the darkroom, the person less experienced either has a number of failures and has to go back again, in case the picture can be made over again, or he exposes two or more times as many plates or cut films as does the professional.

Consequently, if this photographer begins selling his work at prices below those quoted by the best professionals, he finds eventually that he is getting an extremely low rate of pay for his time. When all other expenses are deducted, it is apparent that if he was devoting all his time to the work and was able to get no higher rate per hour for his time, he would not be able to make a living.

Accurate and careful figuring of costs when making photographs to be used for the purpose of illustrating articles that have been written and sold indicates that one can no more than break even on the average if he receives three dollars for each print sold. This is due to the fact that it is usually necessary to submit more prints than are actually used. It is due to the time that is consumed in traveling to and from the place where the pictures are to be made; the time required to prepare for the picture-making—that is, arranging for the proper posing, arrangement of goods that are to be photographed, and a hundred and one other details that enter into the making of the pictures. In fact, about the only advantage that exists in making one's own pictures is that he is more certain to get exactly what he wants. Also, when on a trip and gathering writing material in small communities, where there may not be a really high-class commercial photographer, one can get his pictures as he goes along.

In spite of all the discouraging features, however, it is still possible to make the camera show one a real profit. First, the features are faced. One learns the real facts, and then conducts himself in such a manner as to make the most of them. It is necessary to put forth every effort to save both time and material. Know exactly what you want and what will sell, and don't waste any time or material in making exposures on something that will not sell. Make every single exposure count!



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Binding Tape in the Darkroom

SAMUEL F. RACINE, C.P.A.

YOU are missing something if you don't use binding tape in the darkroom. It fills so many needs that cannot be supplied in any other manner that it seems almost impossible to get along without it. For your benefit, I am going to list a few of the uses that I have for tape.

First, of course, I use it to cover cuts or bruises, so that they will not become exposed to chemicals. In addition to this, I also use it for labels. I buy the tape about 1½ inches wide and cut it into lengths of three or four inches for this purpose, using the typewriter to indicate the contents of the bottles or containers that are to be used therewith and the formula for use in preparing the contents.

Another desirable use is that of increasing the size of corks. Frequently the cork taken from a bottle is so small that it extends too far into the bottle to permit it to be removed readily. By wrapping tape around it, it is possible to increase the size sufficiently to cause it to extend a greater distance outside of the bottle and to be removed more readily.

Still another use is to cover abrasions in enamel ware. As we all know, once the enamel is cracked, rust forms, and rust is liable to spoil a negative. By covering the spot with the binding tape, it is possible to increase the life of the trays considerably.

I frequently find it necessary to use heavy cardboard backing on dorotypes so that they can be used for serving trays. They make a beautiful tray; but the glass is hardly strong enough to stand ordinary usage, and if water should be spilled on the tray and work into the emulsion and the gold, it would spoil it. By binding the edges of the glass and the heavy backing with the adhesive binding tape, this is avoided.

I use tape also in connection with my cloth-lined trays. I have a number of home-made trays and find a strip of adhesive tape, folded down the center so that the sticky side is out on both sides, can be placed along the lower edges of the box between the wood and the rubberised cloth, thereby holding the cloth in place. It can also be used to cover the folds in the corners, thereby keeping the chemicals out of the folds. This permits trays to be used for more than one purpose, as there is no danger of the old chemicals working back out of the folds into new solutions.

By binding tape I mean the ordinary adhesive tape that we obtain at the drug store. A cheaper quality, which seems to answer as well as that mentioned for nearly all the uses suggested, is the Eastman Adhesive Shielding Tape, which is used by automobile painters to hold the protecting paper necessary when using their air guns. Black binding tape such as is used for binding the edges of lantern slides serves perfectly to patch the cracks of the darkroom walls.

First, a small spot, sufficient to cover probably a quarter of your red light globe, placed on the side toward your developing tray, cuts off the ray of light and protects the plate to that extent. I use it also to cover my green developing lamp. Although the glass originally exposed is probably 2 x 5 inches, it is all covered except a slit about the size of the edge of a dollar ⅛ x 1⅝ inches. When this is first turned on, the room appears to be in perfect darkness; but in the course of five minutes, the eyes will become sufficiently accustomed to the light, so that the clock and similar objects necessary for a person to see can be very easily distinguished. After ten minutes, the number of objects you can see is most surprising. With this small light, I find it possible to develop even the most sensitive panchromatic plates without fog.

Still another use that I have for binding tape is in connection with my enlarging frame. I have an arrangement whereby I am able to enlarge in my darkroom. I have a switch inside of the darkroom which is thoroughly covered with binding tape so that no sparks will fly when I turn it on. Outside of the darkroom, I have a light-socket to which I attach the cord for my enlarging lamp—a 400-watt lamp taken from my lantern-slide machine. This lamp sits in a box which I can attach to the outside of my darkroom. By the aid of a reflector, I shoot this light through a hole in the darkroom wall. On the outside of this hole I have a plate of groundglass. In the center of it, I have an ordinary printing frame; but instead of using the back of the frame, I insert, in the grooves of the frame, celluloid holders. I have these holders arranged in

FROST FLOWERS
DR. B. J. OCHSNER
HONORABLE MENTION—OUR MONTHLY COMPETITION

two sections like the cover of a book, but with the centers removed so that the light can shine through. I also have them in various sizes arranged so that I can place a film between the covers and hold it in place. I then place my camera on the inside and can enlarge the picture that appears on the film to almost any size that I wish on an ordinary drawing board, which I can slide back and forth on my table. This enables me to enlarge up to 22 inches. Binding tape is used to bind the two pieces of celluloid together to form the two covers to my film-holder; also binding tape on both sides of the celluloid strengthens it and provides a more perfect contact with the edges of the film and holds it in place that much more securely. These covers are all made so that they will slide into the grooves of the printing frame, the only difference being that the centers of each one of them are cut out to hold a different size of negative.

The Photographer

GEORGE PARKE

WHEN the gentle burglar isn't burgling, he's just the same as any other honest man; so I am sure that when the itinerant photographer has retired with his ill-gotten gains and established himself in a bungalow, bought on the terms of what have you and sixty dollars a month for the balance of your life, he has aspirations and twinges of conscience the same as any other grafter. Such being the case, I want to be the first one of this craft to turn State's evidence.

My doting mother had left the choice of an occupation for me in the hands of a younger brother of a studious nature. He had just entered into a partnership with a photographer of the old school; so I was taken into the bonds of an apprenticeship to this then mysterious art. The studio became my abiding place for every day of the week, and I found a fertile field for my experimental inclinations. My first attempt at practical chemistry was the combining of nitric acid and ammonia in a narrow-mouthed bottle, resulting in the total destruction of my best trousers and the studio carpet.

Warned by this outcome, I proceeded with more care but less success. I was permitted to mix some of the stock solutions, and I did it thoroughly. The developer was seldom of the right consistency, the fixing bath was usually well fixed, and the points were all missing from the retoucher's pencils after I had written to my best girl and described the delights of the photographic profession. The climax to my experimentation came when I thoughtlessly left a portion of the nitrate of silver bath in the wash basin, in which the boss afterward bathed his face. It was almost a month before the brown stains left his face and the marks of a licking he gave me disappeared.

In the course of a year I managed to learn a little of the working details of the business, particularly in the matter of "spotting" prints. With unerring aim I could place a little dab of color exactly beside a white spot on a portrait, thus guaranteeing the customer double the usual number of spots for his money. Passing over such incidents as leaving the tap on all night and flooding the tailor shop below with water, adding an excess of aniline blue to the toning bath and thereby coloring the thoughts of the pessimistic printer, and overprinting numberless proofs while absorbed in Wild Western novels, I will say that the firm managed to survive that year. But it then closed its doors with much to the side of the loss column, except the matter of my salary, which it did not pay.

Cast upon my own resources, I entered the professional field by borrowing $25 from my mother and investing it in what was then called an amateur outfit. This consisted of a 5 x 8 camera, a single achromatic lens, and a single plateholder. The carrying case, which weighed only five pounds, was an institution in itself. With a few alterations and the insertion of a couple of partitions, a small family could at present use it as a flat. The tripod that came with the outfit was strong, substantial, and easily transported by means of a wheelbarrow.

Beginning my professional career with a view of a neighbor's backyard, including her-

self and the clothesline, was not a distinct success. While the pose of the lady was quite natural and unconscious, as she stooped over to pick up a piece of underwear, she did not approve of the proof I submitted to her, but applied a section of the clothesline to the rear end of my anatomy and threatened me with arrest. In revenge I showed the proof to other neighbors, who were hilariously approbative and voiced their comments across intervening fences. This brought about a compromise, and I disposed of the negative for a neat sum, it being immediately destroyed by the buyer.

This first effort at relieving the public of its coin was crude; but I soon learned the ropes. The average customer looked upon photography as something akin to magic, and we could put over almost anything without detection. The only requirements were that both ears showed and that all of the victim appeared in the picture—nothing but full lengths being accepted.

I was an indifferent success until I joined efforts with an old-time tintyper about the time the glass negative came into vogue. I had been using them for a week, and had no hesitancy in agreeing to teach him this new method in exchange for a half-interest in a floating studio boat then moored at the New Orleans wharf. It was a great combination. The old man had accumulated a variety of "cuss" words during his experience with the country people, and I had the rich experience of a few months as a "mud clerk" on a Mississippi river packet. Either of us could have addressed the Senate, extemporaneously, with great success.

The flatboat was about forty feet long and ten feet wide, the center being occupied by the heavy glass "skylight". It was fitted with a mast, a "lateen" sail, and long "sweeps" instead of a rudder. It had also a pair of "lee boards"—center boards. To assist in propelling the boat, we bought a hot-water boiler from a barber, fitted it to an upright marine steam-engine of uncertain age and about four horsepower, and connected the outfit to a four-foot paddle wheel at the stern. As the boiler had no door to the firebox, we dropped the coal down the smokestack, sometimes catching and throwing back the smaller pieces that were thrown out by the exhaust.

A friend contributed a steam whistle, once used by a large river packet. We blew this the first time at a landing some miles up the river from New Orleans as a signal to the wharf boatman, but the effort was too much for the boiler and the boat drifted back two miles before we could get enough steam up to propel it. Thereafter we landed first, and then blew the whistle to comply with the marine regulations.

The efforts of a German deck hand to find his wooden shoes after jumping overboard in five feet of mud; the delay occasioned by returning for me after I had sunk a pole too deep in the river mud and held onto it while boat slid from under; the disturbance caused by the senior partner the first night he slept in a hammock that swung him, asleep, into deep water—all are details that chapters could not record adequately. Suffice it to say that the trip was profitable, though short, and we landed in Memphis with some cash and lots of experience. There we sold the boat and looked around for business.

We had to invent new ways of getting the prospect onto the plate, painlessly. Some brilliant genius had toured the town with a gayly caparisoned pony, on which the ambitious youngsters were easily persuaded to pose. Another humbler imitator used a "burro"—which is a jackass, not a piece of furniture. I scorned the latter method and found the first one had become trite.

Attending the opening of a new grocery one day, I received a ticket for a raffle, with unique prizes. I won the "uniquest"—a goat. I had to take him home, as the store was on the "cash-and-carry" plan; so I walked eighteen squares up rear alleys, meeting most of my friends on the way. I didn't know I had so many. The fresh red paint on Billy's horns also ruined my new suit.

Inspiration caused me to utilise the goat as a drawing card, and we harnessed him to a strong little wagon and toured the town, "kidnapping" all children who could be induced to take the driver's seat. Two heads being better than one, we bought another male goat, but the recurrent fights drove away customers and damaged the wagon. So we bethought us of the Turkish system and sold one male, buying two females, after which the remaining "Billy" got along famously. There must be something in the Mohammedan system, for Billy and his harem never had a cross word. They, however, delighted in dragging the protesting customer all over a lawn or into the most unexpected situations, in search of the peculiar food of

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goats. This usually happened just as a pose had been arranged and the slide drawn.

As a lure for the children the goats were fine, but as a means of transportation they were nil. The average gait of a goat is two miles an hour, and the wagon having no springs, we seldom rode in it. So when we were compelled to return home with the team, it had the appearance of a slow funeral procession, accompanied by a ribald troop of all ages and colors. Hence we usually left the team overnight near where we quit work, and rode home on the trolley.

One evening we got permission to tie the animals in the rear yard adjoining the home of an Irish washlady, who was assured that they were absolutely tame and harmless. But about 1 A.M. we were awakened by a telephone call from the woman, who demanded that we come at once and save her from "these divvils". Asked where she was at the time, she explained that she was at the home of a friend who was guarding the door with a shotgun. We arrived on the scene in an old-fashioned "hack" and found the goats in complete possession. During the night they had gnawed their tether, eaten all the "wash" off the lines and most of the shrubbery, and had entered the house through a pantry window. Being of a "finnicky" taste, they had eaten selectively, trampling all they did not devour, the result being astounding. The owner, in attempting to eject them, had been forced to flee for her life to a neighbor's protection.

We haltered the horned harriers, paid for the damage, and led the goats slowly home. But this ended our work in the town, for the news spread, and parents feared to trust their tender little ones to the mercies of such wild animals. So my partner and I severed our combination and he left town.

My progress from that time on was steadily upward. I "took" the whole family in a picture, taking a mortgage on the home to pay for the work. I delivered my pictures as soon as possible after making them; for pictures are like biscuits—fine when hot, but soggy when cold. I operated sometimes in a tent and sometimes on the prospect's pocketbook. I followed the fairs, and had the sheriff following me most of the time. I "flashed" interiors and "passed proofs", acted as "caller out" and was also "called down", and finally became a movie operator for a news weekly. This brought about a reform, and now I simply act as mentor for the unwary amateur, and guide the newcomer into the primrose path of the photograph snapshooter.

My Autobiography in Photography

P. B. BACHELLER

WHEN I was a boy of only eight or nine years, I took a great interest in photography. How I longed for a camera! Little did I realise then how valueless my purchase would have been had the funds been forthcoming; but my parents had all they could do to feed and clothe two youngsters, so my desire had to be only a vision—a sort of daydream—for some years.

The catalogs of those days contained much more photographic information than those of the present day, and I read everything available on photography. Well do I recall cutting a piece of paper quarter-plate size ($3\frac{1}{4}$ x $4\frac{1}{4}$) and using it in my schoolbooks as a bookmark. Many a delightful scene was composed in my mind's eye on that piece of plain paper; yet, strange as it may seem, of all the cameras that have come into my possession since then, none have been the size of my first dream.

Perhaps you can realise my pleasure when I, too, like Dr. Richards, got some subscriptions for the dear old *Youth's Companion,* and obtained my first camera, a little Pocket Kodak, size $1\frac{1}{2}$ x 2, if my memory serves me correctly. This little camera was much like the present Brownie, only much better made. It was of spruce wood and covered with genuine leather. It carried a menicus lens and the same type of rotary shutter that is used on the Brownie of today. The negative was made on the old-fashioned, very curling roll-film, as all this was back in the late fall of 1896, in the day of "You Press

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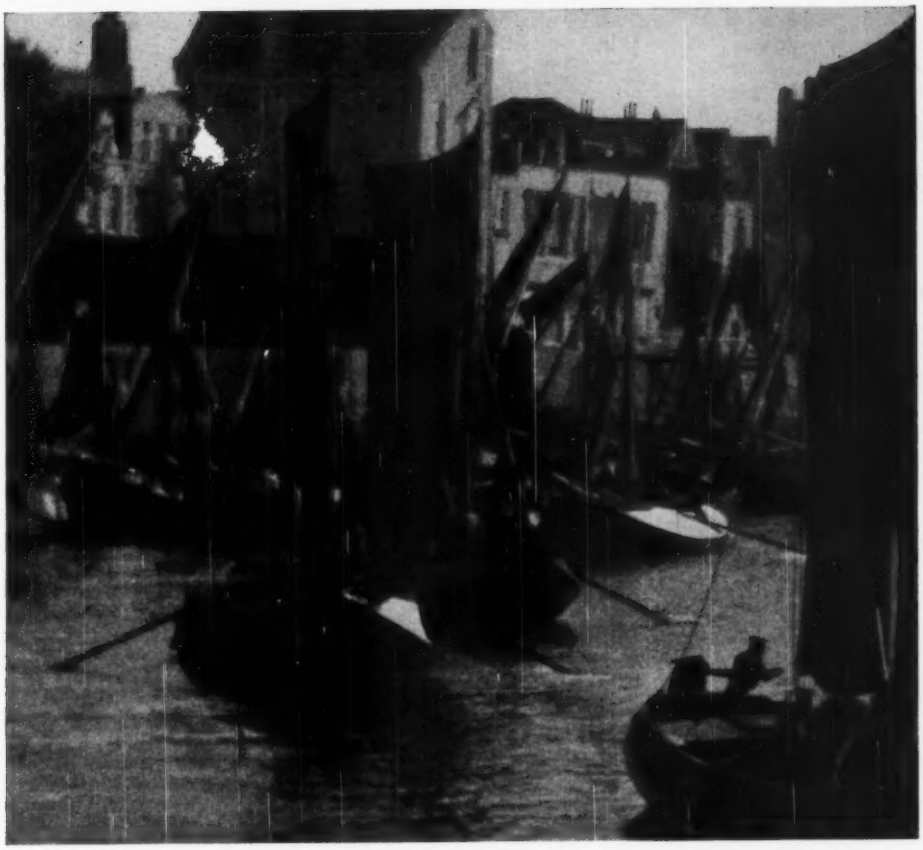


OLD FLUSHING
EDWARD P. MC MURTRY

the Button, We Do the Rest". I have all the negatives and many of the prints from that little pal of a camera.

Along about this time a neighbor, an oldish gentleman and very fond of children, got an Anthony & Scovill view camera, size 5 x 8. This he used on a heavy tripod, and I can see him now, just as he looked then, traveling around with this ponderous outfit over his shoulder—some contrast to my little box. He finished his own pictures, and, as we were good friends, he showed me a lot of the tricks of the trade, and when asked how he mixed his developer would say that he "took a little of this 'chimical' and a little of that 'chimical' and so much water". We tried our hand at developing a roll of my film one afternoon. The celluloid is in my possession now, and what was left of the once good emulsion. It was, and is, a sight to behold—not much like the good clean work we put out nowadays on non-curling film!

But all good friends must part; so I sold the little Kodak to my family M.D., and it went more than once with him to Europe as a traveling companion.

My next adventure in photography was a 4 x 5 Pony Premo camera, using plates, and having a rapid rectilinear lens and a Victor shutter. This was a fine camera for its day (1900). My good friend, mentioned above, developed the first plate, a Stanley, from this camera. Not being used to plate-holders caused a partial failure of this exposure. One end of the plate was fogged by pushing the holder only part way in.

My knowledge of photography came along faster now. I soon built myself a darkroom, and it is in use in my home today. Thousands of roll films, hundreds of film-packs, hundreds of all kinds of plates, and dozens of cut-films have been developed in this same little "two by twice" room for myself and others.

Like many, I became eager to have a 5 x 12 Alvista camera, so I collected twelve subscriptions for the *Recreation* magazine and received the camera as a premium. After using it for a time, it went the way of its predecessor.

With my Premo, I made and sold many pictures, or rather photographs. This was the day when all work was mounted. Then, getting the idea that more money would come into my purse with a larger camera, the Premo was sold and a Korona IV, 5 x 7 plate camera was purchased. It was a dandy; but this is the age when a fellow doesn't know what he wants, so this camera went the way of the other three.

For a number of years I used borrowed cameras, a 5 x 7 Conley, then a 5 x 7 long-focus Premo. During this time a No. 2 Folding Brownie was purchased for use on vacation trips. I obtained a fine lot of negatives, and, after a number of years, traded it for a postcard titling outfit.

Along about this time the genuine photographic postcard came into popular favor, and I realised the need of a 3¼ x 5½ long-focus plate camera, with swing back and reversible back; so when the Seneca people in 1909 announced such a camera, one soon came into my possession. This camera stayed with me a little over nine years and made hundreds of negatives of my friends and views for the summer camps, stores, and real-estate agents. All this work was done on Standard Polychrome plates backed with black paper. An enlarger was made using my Seneca, and many enlargements were sold.

During this time I traded for a 4 x 5 Auto Graflex and used a 6½-inch Wollensak anastigmat lens purchased for the Seneca. Others like a reflecting camera; but to me, a six-footer, the viewpoint seems too low.

My Seneca No. 8 became too badly worn from constant use to handle the anastigmat lens satisfactorily; so in the late fall of 1918 this camera and the Graflex were exchanged for a postcard size Seneca No. 9, without lens or shutter.

Soon after this, a retired artist photographer gave me an ancient 5 x 7 camera with the advice to trade it for something I needed. I felt the desire for a small camera as a traveling companion; so traded the 5 x 7 toward a No. 1 Ansco Speedex camera. Some very good negatives came from this outfit, but it was not quite up to my expectations; so this camera and my No. 9 Seneca without lens or shutter went for a No. 1 Ansco Super-Speedex camera with Bausch & Lomb Tessar lens and Acme shutter. This is a very choice outfit. I have an Ansco direct-view finder, a finder magnifier for the small finder, a 3x ray filter, a sky filter, a portrait lens, a Kodak self-timer, and a lens shade. With this outfit and the little enlarger you read about in PHOTO-ERA MAGAZINE, some very fine work is done. The favorite points for me on this camera are the depth-of-focus scale on the bed and the fact that the shutter

speed, stop, and focus scale can be left where desired for instant use when the camera is reopened.

In 1922, I took a correspondence course in photography with the International Studios, Inc., Chicago, Ill. A course such as this is certainly a great investment for the serious worker and a wonderful help. It is clear and concise and does not make "mountains out of molehills", as do many of the books of supposed instruction that are on the American market.

At this point in my narrative, I had in my possession my little Ansco camera and outfit and a Wollensak Anastigmat Series 1 lens of 6½-inch focal length in auto-shutter. Knowing my need for a good long-focus 5 x 7 camera using plates or cut-films, I intended to buy a new view camera with case and the necessary holders. Having a friend who owed me some money and who had an old 5 x 7 Cycle Poco B camera in a very dilapidated and much-abused condition, with some parts missing, I took it over. It had a very good three-focus rapid convertible lens in auto-shutter. In fact, the lens and shutter were just what I took the old outfit to get, thinking I would use them on the view camera; but when I got the old outfit home and looked it over, the thought occurred to me that I could repair it for use.

It was always a delight to me to have something like this to putter on evenings; so I started in on it the first night. The side arms were entirely gone. A new set was made from some brass printing-frame springs. Some smart person had taken out the ground-glass and put it back wrong side to, so that it did not register with the plate in the holder. The springs holding the receding back and the reversible back were twisted out of shape. These were brought back to normal. For a wonder, the swing back was all right. The arrangement that held the bed to the camera box was gone. I overcame this by using a pair of brass cupboard hinges. The bellows was unglued and the small end had been wet, so I cut off two inches and glued up the rest. This left length enough to enable me to use the back combination of my Wollensak lens alone. After blacking up the leather covering, I had a good, serviceable camera, solid enough to carry anastigmat lenses.

My next task was to find some plate-holders; so I sent to Charles Willoughby, Inc., for their second-hand list. In this list I found advertised 3 Empire State holders for one dollar, new. They proved to be, with a little shaping over, just what were needed. I use cut-films in sheaths in these holders.

Soon after this I tired of the rapid convertible lens, so ordered a Gundlach anastigmat lens, 8½-inch, in Betax shutter. It is the favorite lens and shutter in my possession. Next, I provided myself with ray filters, and from the leather case of the old camera I made lens-shades for both lenses in the form of cones.

My next undertaking was to make a case to carry camera, lenses, and the rest of my paraphernalia. This I made of wood with brass corners, suitcase style, and fitted with handle and lock.

This camera with 8½-inch lens yields 5 x 7 negatives of superior quality on plates or cut-films, and for postcards and 5 x 7 interiors I use the 6½-inch lens.

For my commercial finishing, an Ideal Film Tank System was purchased.

Last winter my 5 x 7 rapid convertible lens, a 4 x 5 rapid rectilinear lens, some printing-frames for which I had no more use, and some other things went for a Kodak metal tripod, a Kodapod, and other things that my work calls for. The one item I seem to need now is a Photo-Flash Lamp to fire the new Photo-Flash bulbs.

Now friends, do not think the articles I mention are all there is, for there are probably others just as good and perhaps better; but they are the ones that have fallen to my lot, and, in my hands, are doing what I require of them.

We are well supplied with plates, films, papers, and chemicals with which to work. Quite different from thirty-five years ago! Only the other day, when I made a photograph of a hotel dining-room interior on cut-film, the thought occurred to me what a change had taken place since the day of the single-coated plate that had to be doctored so carefully to avoid halation.

In closing, let me add the advice to subscribe to as many photographic magazines as you can afford, enter competitions, sell prints to newspapers and magazines, and, above all, enjoy yourselves in photography! The thrill is still coming my way after thirty-five years of photographic experience.

[Much of the interest in photography is found in the exchange of experiences and ideas. There is a warmth in human interest which is lacking in the coldly-formal scientific paper.—Editor.]

XUM

L'ANCRESSE BAY, GUERNSEY

CLARENCE PONTING

EDITORIAL

Keep It Off the Shelf!

THERE is no more reason to put one's camera on the shelf for the winter months than there is to put one's automobile in the garage until spring. In these modern days of splendid photographic equipments and wonderfully sensitive plates and films, there is no photographic season. The entire year is the photographic season. Just as motor-driven snowplows keep the highways open all winter and effective road-making machinery makes automobile driving a year-round pleasure, so present-day cameras and sensitive material make photography possible every month in the year. In fact, now it is possible to enjoy picture-making as never before. Each season of the year brings with it new subject material and pictorial opportunities. And now, as the marvelous autumnal colorings and the crisp, cool days are at hand, our cameras should be kept off the shelf and in active service. Soon, too, will come the winter days and the beautiful subject material offered by snow, frost, and ice. With the highways open, it is possible to motor far out into the country, and many interesting pictures may be made without even leaving the shelter of the car. However, those who put on snowshoes or skiis and hike across country through open fields, along frozen brooks, and into the forest will obtain a photographic thrill which is to be had at no other time of the year.

Not in recent years have amateur and professional photographers had such an opportunity to record the beauty of autumn foliage. The new plates and films, even in monochrome, render color-values as they have never been rendered before. As for natural-color photography, there is almost no limit to the possibilities in still and motion-picture equipment. The new plates, films, and filters, correctly used, make success virtually certain. Manufacturers and dealers are offering a bewildering variety of outfits and accessories. For this very reason, those who wish to make a success of their photographic trips will do well to take sufficient time to obtain information and visit their dealer before going afield to make natural-color or even monochrome pictures of fall and winter subjects.

Modern smokeless flashpowder, Photoflash lamps, and many types of artificial illumination now provide all manner of indoor photographic opportunities for those who, for one reason or another, cannot get out into the country for subject material. Portraiture, still-life, illustrations for advertising, copying, and many forms of industrial photography offer pictorial and financial opportunities. The Christmas holiday season is not very far away, and it is not too early to think of cards, calendars, and enlargements for gifts. With a few exceptions, it may be said that the modern photographer does not care whether the sun shines or not. He can always find excellent subject material for his camera.

During the past summer we have frequently met those who appear to assume that a camera is a necessary part of one's vacation equipment; but as soon as the vacation is over, the camera is put back into its case and locked up in a closet until next summer. Furthermore, while the camera is in use, these good people do not seem to be a bit curious with regard to exposure, focusing, and shutter speeds. They just snap the shutter, apparently regardless of how it is set, hurry to the nearest drugstore or photo-finisher, and then are surprised or chagrined at the results. These same careless snap-shooters would not think of playing golf, shooting, sailing, or swimming with such utter disregard of the rules of the game. The winter months are excellent for photographic training. Find out what makes the picture in your camera, and why!

Whether you have paid two dollars or two hundred for your camera, it represents an investment. The careful investor knows exactly what he is buying and what he has paid for. He sees to it that he receives dividends. A camera on the shelf yields no dividends, photographically or otherwise. There is pleasure, health, and financial profit in keeping your camera off the shelf this fall and winter.

XUM

OUR MONTHLY COMPETITION

Closing the 5th day of every month
Address all prints to PHOTO-ERA MAGAZINE, Monthly Competition
Wolfeboro, New Hampshire, U.S.A.

Awards

First Place	10 Points
Second Place	7 Points
Third Place	5 Points
Honorable Mention	4 Points

(*a*) The person having the highest number of points at the end of the year, December 15, 1931, will receive an engraved silver cup; the next two highest, smaller engraved silver cups; and the next five highest, one-year subscriptions to PHOTO-ERA MAGAZINE.

(*b*) *All who win awards receive Certificates.*

(*c*) Those who win an Honorable Mention Award and are *not regular subscribers, or have not been regular subscribers,* will receive PHOTO-ERA MAGAZINE for six months, with the compliments of the publishers.

(*d*) No competition-pictures are sold, exchanged, or the halftone-plates sold without permission, in writing, from the maker of the print. Proceeds of all sales, *excepting halftones,* go to the maker of the picture.

(*e*) All competition-pictures not returned are used to make up the PHOTO-ERA PICTURE EXHIBIT which is sent to schools, libraries, museums, camera clubs, and to responsible organisations for exhibition-purposes, *free of cost.*

Rules

1. This competition is free and open to all.

2. Not more than two subjects may be entered. *Composition, exposure, and photo-finishing must be done by the competitor.*

3. Mounts must not be larger than 16 x 20 inches. Prints may be mounted or unmounted.

4. Each print must bear on the back the maker's name and address, and the title of the picture, and should be accompanied by a letter, giving full particulars of date, light, plate or film, make, type and focus of lens, stop used, exposure, developer, and printing-process. *Entries which do not comply with this rule will be omitted.* Enclose return postage. Data blanks sent at request.

5. Prints receiving points become the property of PHOTO-ERA MAGAZINE, unless for special reasons. This does not prevent the photographer from disposing of other prints from such negatives after he shall have received official recognition.

Photo-Era Competition Cup

6. Unsuccessful prints will be returned only when return-postage at the rate of one cent for each two ounces is sent with data.

7. Overseas competitors may send prints for several competitions at the same time. This will facilitate packing and reduce transportation charges.

AWARDS—OUR MONTHLY COMPETITION

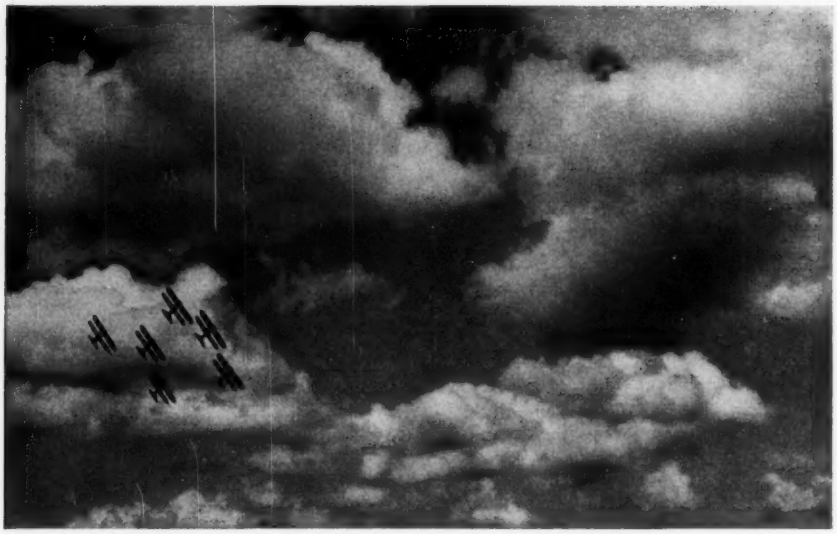
Subject—MISCELLANEOUS

Closed August 5, 1931

First Place	H. F. Hiecke
Second Place	Arthur M. Underwood
Third Place	Melvin Martinson

Honorable Mention: Roy and Brownie Adams; Carmine Albanese; Edward Andres; Edward Bafford; J. M. Banerjee; James A. Bell; Paul Bras; Fred A. Collatz; Leland H. Croscup; J. Daniels; U. K. Das; R. W. Dawson; Carl Demaree; Roy M. Ek; Dr. Irving B. Ellis; Harry B. Fisher; George W. French; George M. Gerhard; Waldemar Glass; Edward L. Gockeler; Aileen L. Grapensteter; L. P. Gravel; W. H. Gruening; Zoltan Herczegh; Lionel Heymann; Nelson Irving; U. Stephen Johnson; Sorab J. Kharegat; Dr. K. Koike; Fred G. Korth; Alma R. Lavenson; Kusutora Matsuki; William J. McCune; Anne H. Mellin; John C. Moddejonge; A. E. Moebs; Dr. B. J. Ochsner; Edward Ott; Alfred Petrick; G. H. Ross; E. J. G. Schermerhorn; Thomas Scott; William H. Shupe; N. P. Smith; Charles L. Snyder; Dr. Max Thorek; Elmer P. Trevors; William O. Yates.

STUDY
H. F. HIECKE
FIRST PLACE—OUR MONTHLY COMPETITION



TOWARD THE UNKNOWN — ARTHUR M. UNDERWOOD

SECOND PLACE—OUR MONTHLY COMPETITION

Our Monthly Competition

THOSE who are interested in contrasts will surely agree that Mr. Hiecke has succeeded in obtaining an unusual effect. The bear is certainly black, and the trees and foreground are in a high key. At first glance the bear seems to be distorted, or minus part of his front paws and some of his back. However, a careful consideration of the picture and the source of illumination will show that the sunlight reflected from the shiny black fur is responsible for the bear's apparent deformity. It should be noted that Mr. Hiecke has very cleverly placed the bear so that he has plenty of room to walk into the picture-area. In fact, there is an unusually strong center of interest in this picture. It is obtained for the most part because of the contrast between the bear and the trees; but much of the strength is also obtained through the placing of the bear and having him headed into the picture. Without a question this picture is original, and certainly effective. We have never seen a bear picture of this kind before, and we commend the initiative which prompted the attempt to make this unusual study.

Data: Made in Yellowstone National Park with a 3¼ x 4¼ Graflex camera; lens, F/3.5; focal length, 6⅜ inches; stop, F/8; June, 6 P.M.; good light; exposure, 1/40; Eastman Portrait panchromatic cut film; developer, A B C Pyro; Opal printing paper.

Although aviation is now an established industry and accepted means of transportation, it still has its peculiar fascination, even to those who are in daily contact with all branches of aviation. On the ground, an airplane may seem to be just another mechanical contraption of this so-called machine age. It has wheels, a sputtering motor, wings, wires, and windows—all of which are familiar and perhaps humdrum things to us. However, a few minutes later, when this same contrivance of man reaches altitude, and especially if it is silhouetted against beautiful clouds, we are swept into the realm of the romantic, and we think in terms of beautiful birds winging their way through the sky. Whether Mr. Underwood had a similar thought in mind, we do not know; but in any event he has carried out our thought, and his six ships appear to be winging their way into the Great Unknown of the heavens. It will be noticed that Mr. Underwood has selected the lower left corner for his center of interest, with the planes heading into the picture-area. As in the case of Mr. Hiecke's picture of the bear, an extremely strong center of interest has been obtained and the observer's eye is held in the picture-area. The possibilities in aërial photography and in pictures of airplanes in the air are innumerable; and, as in the present case, magnificent pictorial values can be obtained by those who are skilled and can make the most of their opportunities. Special attention is called to the data, which follow:

Data: Plane Negative—16.5 cm. Zeiss Tessar; 1/20-second at F/11; Portrait Panchromatic; bright day; July; developed in M. Q. Borax. Cloud Negative—Vest-Pocket Kodak anastigmat; 1/25-second; F/16, 7x filter; Verichrome film; bright, cloudy day; July; developed in metol pyro. Print, Vitava Projection Opal Q; planes enlarged two times; clouds enlarged 3½ times; developed in

GLORIA — MELVIN MARTINSON
THIRD PLACE—OUR MONTHLY COMPETITION

Amidol. Double printing, as per Clarence Ponting's article in PHOTO-ERA MAGAZINE.

In the past we have reproduced many very attractive pictures of children, and we believe that "Gloria" may be added to the long list of beautiful children who have graced our pages. We like the spacing which Mr. Martinson has given his little subject. There seems to be plenty of room for her to sit comfortably in the picture-area. Her hands are well taken care of, and there are no obtrusive knees or feet to disturb the pleasing composition. There is no question but that the little lady is interested in the photographer and in the camera, but it is this very interest which makes the facial expression attractive and adds life to the eyes. Altogether, we believe that Mr. Martinson should feel very happy over this picture.

Data: 9 x 12 cm. Erneman camera; Lens, Ernon F/3.5; focal length, 8¼ inches; stop, 3.5; July, 3 P.M., good light; exposure, 1/10; Eastman Verichrome filmpack; developer, Rodinal; Eastman Portrait Bromide Rough Luster printing paper; daylight, and 1000-watt Mazda lamp.

Some Early Returns

IN the September issue we asked our readers, and particularly those who contribute prints to our competitions, to tell us frankly and constructively what they thought of the present competition rules. Obviously, we wish to make these competitions of service to the greatest number. Furthermore, we do not wish to continue them if they have served their usefulness. At this writing we have received several interesting and helpful replies. With the exception of a few minor suggestions all, so far, agree that the present type of competition is very satisfactory, so far as these correspondents are concerned. We hope that others will write us so that we may make our plans intelligently for the coming year. As one reader points out, it is true that there are many attractive and highly profitable salons and competitions in all parts of the country. This was not true fifteen years ago. The question now is whether or not the space devoted to our competitions might not be utilised to better advantage by including more reading and illustrative material. Your suggestions will be most welcome.

A. H. BEARDSLEY.

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THE COMPETITION SCOREBOARD

AUGUST 5, 1931

	Points
Edward L. Gockeler	42
Dr. Max Thorek	42
George W. French	41
Dr. Irving B. Ellis	40
Edith H. Bethune	37
Roy and Brownie Adams	36
R. W. Dawson	36
Harry B. Fisher	36
Sorab J. Kharegat	36
Dr. K. Koike	36
Zoltan Herczegh	35
E. J. G. Schermerhorn	34
Dr. F. F. Sornberger	33
Paul Bras	32
J. Daniels	32
Carl Demaree	32
Kusutora Matsuki	32
Melvin Martinson	32
Waldemar Glass	29
Lionel Heymann	28
Fred G. Korth	28
A. E. Moebs	28
Charles Linke	27
William O. Yates	26
Edward L. Bafford	25
Edward Andres	24
Alexander Clair	24
Leland H. Croscup	24
Dr. Kelley Hale	24
Alma R. Lavenson	24
William J. McCune	24
John C. Moddejonge	24
J. K. Hodges	22
Carmine Albanese	20
Axel Bahnsen	20
James A. Bell	20
Howard G. Dine	20
E. Graham	20
M. Itoh	20
U. Stephen Johnson	20
Anne H. Mellin	20
Dr. B. J. Ochsner	20
N. P. Smith	20
Charles L. Snyder	20
Harry W. Story	20
Arthur M. Underwood	20
Allan F. Barney	18
Alexander Leventon	17
J. M. Banerjee	16
Aileen L. Grapensteter	16
Frederick J. Hermann	16
Edouard C. Kopp	16
C. P. Martin	16
A. G. Niido	16
G. Hilliard Ross	16
Thomas Scott	16
Corrado Sallustio	16
Elmer P. Trevors	16

	Points
A. W. Clark	13
Glen H. Broyles	12
C. H. Clapper	12
Robert B. Clark	12
George M. Gerhard	12
M. Gurrie	12
Xerxes Johnson	12
Emil H. Kopp, Jr.	12
Walter Lipkau	12
Ladis A. Lisy	12
M. G. Monami	12
C. A. Shaw	12
A. M. Tomlinson	12
J. C. Wedekind	12
T. R. Wiley	12
Leonard Purin	11
H. F. Hiecke	10
Edward Alenius	8
Roland F. Beers	8
Fred Beidleman	8
Matthews S. Beros	8
John L. Bruns	8
J. A. Couty	8
Gilbert Davies	8
James M. Dille	8
Beatrice M. Dine	8
William J. Ennever	8
Edwin W. Gantt	8
A. F. Gatow, Jr.	8
L. P. Gravel, Jr.	8
Earl Gray	8
Onn M. Liang	8
Wesley Lord	8
H. P. Morris	8
Henry Y. Okiyama	8
Alfred Petrick	8
William M. Reyes	8
James Simpson	8
L. H. Townsend	8
A. L. Tracy	8
Martin Vos	8
R. Merrill Webster	8
Hifumu Miyamoto	5
John Barry	4
Louis F. Brook	4
Don Burkhart	4
Harold Carey	4
Edward C. Cohan	4
Fred A. Collatz	4
U. K. Das	4
Daniel DeVoe	4
William C. Duncan	4
Roy M. Ek	4
Robert Ewoldt	4
J. H. Field	4
E. P. Fleming	4
Samuel Grierson	4
W. H. Gruening	4

	Points
Arthur W. Grumbine	4
William F. Happich	4
Emily Hayden	4
Harold Hedger	4
Gertrude Hennig	4
Cyril F. Hopper	4
Nelson Irving	4
Ray Lee Jackson	4
R. R. Jarrett	4
J. J. Katarmal	4
Theo Kay	4
Robert S. Knerr	4
Arthur J. Lang	4
Dr. Davies Lazear	4
Joseph F. Leggett	4
George M. Lehnen	4
Isidore Levitan	4
Arnold D. Lewis	4
Johannes Lowenstein	4
Erwin Marty	4
Delle Mason	4
Henry J. Matthies	4
W. Allen May	4
Edward McMahon	4
F. Meyer	4
William F. Murden	4
C. Nabuco	4
N. J. Nalawalla	4
Glendora Nichols	4
W. C. Niesen	4
N. Okada	4
Edward Ott	4
W. H. C. Pillsbury	4
J. B. Priddy	4
John S. Purdy	4
Hugo Raeth	4
Lucian B. Raynor	4
Gaston Remy	4
E. G. Royer	4
A. E. Rutenbeck	4
John O. Scudder	4
Virginia Semple	4
William H. Shupe	4
K. E. Skinner	4
Willard K. Smith	4
Howard L. Snider	4
Leonard M. Snyder	4
Albert B. Street	4
Dorothy Thompson	4
Heinz Timm	4
Yoneo Usami	4
Annie Watkins	4
Adeline Winter	4
Pauline W. Wolfe	4
George P. Wright	4
Gino Zenier	4

OUR ILLUSTRATIONS

A. H. BEARDSLEY

WITHOUT a doubt, most of our readers know that photography plays an important part in the life of our educational institutions. In the past ten years there has been a great increase in this branch of photography; so much so that the term "university photographer" is as definite a designation as that of industrial, scientific, or pictorial photographer. Although we may know that there is a university photographer, we may be a bit hazy when it comes to being specific with regard to his duties. Therefore, we are glad to give our readers just a glimpse behind the scenes of what one university photographer does and is expected to do.

The picture of the Memorial Tower at the University of Missouri has been selected as our front cover and frontispiece, because of its connection with our leading article and also for the reason that it is a very interesting and beautiful architectural study. We can well agree with those who have said that this tower is one of the finest examples of Gothic architecture in America. It is but natural that the university photographer should select this subject and that he should make an outstanding picture of it.

It is perhaps rather a depressing jump from this beautiful tower to the illustration of a crippled child, but that is all part of the work of this university photographer. Although, perhaps, not beautiful, these pictures of a crippled child certainly have a vital appeal and offer convincing evidence that the splendid work being done to bring crippled children back to normal is eminently worth while and successful. The first picture shows the child upon admission to the university hospital; the second, during the process of recovery; the third, when the child was released.

We next have a glimpse of the president of the university with some distinguished Japanese guests, and this suggests another part of the work of the university photographer. It is of importance to the history of the university to record pictorially those who come to visit it. The picture of General Pershing brings out this point, and in years to come it will be a matter of historic value to have this picture as part of the university collection.

An even more radical jump from our beautiful tower is the picture of machine-gun fire at night, showing the use of tracer bullets. The university photographer was faced with a problem when he was asked to record this military demonstration. That he succeeded is evident.

During these fall days the great national game of football is attracting the attention and deep interest of thousands of players and spectators. It is but natural that the university photographer should keep an accurate record of the university football team as it takes the field against its opponents. Not only are these pictures of record value, but they are used for purposes of instruction in coaching the team.

As though the university photographer did not have enough to keep him busy on the ground, he is expected at times to make pictures from the air, and the general view of the university buildings shows that this university photographer can go up in the air and obtain results.

During the past few years there seem to have been recurring waves of interest in stereo-photography. Although they seem to be in the minority, stereo-photographers make up in enthusiasm what they may lack in numbers. There is no question but that there is a beauty and appeal in a good stereo-photograph which is lacking in other forms of photographic reproduction. There is certainly life in the picture. Those of us who can remember the days of stereoscopes which adorned the parlor table can well recall with what interest we traveled to Niagara Falls, the Grand Canyon, or down the Rhine, by means of collections of stereo-photographs arranged in sequence. The modern counterpart of the old-time stereoscopic pictures is found in the beautifully made stereo-cameras imported from France and Germany. Instead of utilising paper prints, the modern stereos are made on glass transparencies and then viewed, as a rule, by means of electrically illuminated taxiphots. An entire series of stereos may be loaded into one of these taxiphots and viewed in consecutive order merely by pressing a lever or turning a knob. Then, too, the modern stereos may be made in natural color, and this adds immeasurably to their beauty.

The examples of stereo-photographs submitted by Mr. Young are excellent and give the reader an idea of the beautiful quality and separation of planes which may be obtained with a stereo camera. Although for the most part Mr. Young confines himself to the old standard size of stereo-photograph, yet what he has to say will apply in great part to modern equipment. He certainly makes a strong plea, and we know that our readers will find much in stereo-photography to interest them.

The illustrations which accompany Mr. Hall's article on his conception of an ideal camera are to give the reader an idea of the various accessories to which Mr. Hall refers. After all, what really counts is the picture, and if it can be obtained with an outfit such as Mr. Hall describes, it indicates that so far as he is concerned it is the ideal camera. However, it does not follow necessarily that, because he favors this equipment, it would be the ideal camera for someone else. Nevertheless, it is always of interest and practical value to know the type of equipment which others find satisfactory, and with which they make a success of photography.

One of the characteristics of most Japanese pictorialists is the ability to produce pictures of pattern or pictorial beauty from most unpromising subject material. It is apparent that Mr. Yates has profited by his study of this

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Japanese characteristic, and so he has produced "The Tower Steps". We venture to say that most of us would have climbed this particular tower without giving a thought to the steps which led us to the top. In fact, probably our interest would be confined to the possibility of making a picture of the view which might be obtained when we arrived at the top of the tower. In the case of Mr. Yates, he evidently was on the lookout for pictorial material at every step. As he came up the tower and happened to look back, the pattern of light and shade and the lines produced by the steps awakened his pictorial perception, and upon further study of the material on the groundglass he saw the possibilities and made the most of them. Some would call this futuristic or jazzy, but we believe that the point of the picture is in the lesson which it teaches us with regard to being ever alert to subject material for our camera.

Data: Made in Erie, Pa., in June, with 3¼ x 4¼ Graflex fitted with a Steinheil Cassar lens of 8½-inch focus. The exposure was 1/25-second at stop F/8, on Eastman super-sensitive panchromatic film. The print is an enlargement on Gevaert Portrait Projection K-33.

It may seem to be a far cry from the wooden steps of a tower to snow and ice, but here again we have an example of a pictorialist who made the most of a subject which perhaps most of us would have overlooked. Although there is not a definite pattern in the composition, as in the case of the steps, yet there is a pleasing composition produced by curves and highlights and shadows. Furthermore, the eye is led naturally from the bottom of the picture to the top, where the darkest area is found. The little tufts of frost on the surface of the ice suggest pond lilies, and Dr. Ochsner rightly calls his picture "Frost Flowers". It is an interesting composition, which we hope will serve as a suggestion to our readers who venture afield during the coming winter months.

Data: Made with a 3¼ x 4¼ Graflex camera; bright morning light; 1/25-second exposure; Wratten and Wainwright Panchromatic plate; pyro developer; enlarged on Novabrom Normal.

Of late, a number of salon exhibitors have wondered at the acceptance and rejection of their prints by leading salons. They have wondered why, if a picture was acceptable to one salon, it was not welcomed at another salon of equal rank and prestige. By way of encouragement we have reproduced "Old Flushing", by Edward P. McMurtry, and call attention to the number of salons which accepted this picture. Notwithstanding the apparently large number of exceptions, it does still seem to be true that an outstanding picture is accepted by the majority of leading salons. It would then seem as though the burden of proof was still on the shoulders of the salon exhibitors, rather than on the shoulders of the committee of selection. In any event, whether a print is accepted or not, the true pictorialist will always strive to make a masterpiece, and in doing so he will derive his greatest pleasure and satisfaction in pictorial photography.

Data: Made in Flushing, Holland, in August, 1927, at 7.30 A.M.; weak sun; 2¼ x 3¼ Kawee camera; Ilex Photoplastic lens, 4½-inch focus; no filter; 1/50-second on Agfa filmpack; metol-hydro-borax developer; enlarged on Ansco Contest paper. Although made on 2¼ x 3¼ film, the actual size of the part from which the enlargement was made is 1¼ x 1¼ inches. This picture was hung in salons as follows: Syracuse, N.Y.; Los Angeles, Calif.; Buffalo, N.Y.; Edinburgh, Scotland; Birkenhead, England; Portland, Maine; Copenhagen, Denmark; Elbeuf, France; Tokyo, Japan; Paris, France; New Westminster, Canada; Dublin, Ireland; Gotenburg, Sweden; Barcelona, Spain; Preston, England; and Bishop Auckland, England.

Our readers will recall the interesting series of articles by Mr. Clarence Ponting and his many and striking pictorial illustrations by way of showing how his several suggestions worked out in actual practice. It often happens that pictures made at the seashore are rather flat and lifeless, especially where there are large areas of sand unrelieved by either rocks or grass. By way of a suggestion to our readers, who enjoy the making of marines, we are reproducing Mr. Ponting's striking picture "L'Ancresse Bay, Guernsey". It will be noted how the figures of the horses and the man add life to the composition, and, if these figures are covered up, how flat and monotonous the scene becomes. We remember in talking with Mr. Clifton Adams of the photographic staff of *The National Geographic Magazine* that he said one of the requirements of his publication was that figures be included whenever it was possible to do so without making the picture incongruous. By referring to any issue of *The National Geographic Magazine*, it will be noted that the majority of the illustrations do contain figures. Although we do not agree that this procedure is always best, yet, in the case before us, there is no question but that the picture is what it is because of the presence of figures. We hope that this viewpoint may result to the advantage of those of our readers who are especially interested in making pictures along the coast or on the shores of large lakes.

"Where Ignorance Is Bliss, Etc."

A FEW evenings ago we were invited to have dinner with some friends. Among the guests was a lady who was introduced to us as being an enthusiastic amateur photographer. That she was enthusiastic there was no question; but with regard to being an amateur photographer, we still have an open mind. During the evening we were asked to see her collection of prints and to criticise them. It was evident at once that the lady believed sincerely that she was showing us some exceptionally fine photographs. In fact, she seemed to place an unusual value on them and appeared to be very happy and contented with her work. To be sure, she asked for criticism, but we could not muster the necessary courage to shatter her photographic peace of mind. We therefore adopted the plan of looking for all the good points in her pictures and mentioning them in detail. In short, we were telling the truth about her pictures without marring the lady's photographic pleasure. We are still wondering whether we did the right thing to be positive rather than negative; but at any rate, so far as we know, the lady is still happy in her photographic work.

THE EDITOR'S CORNER

Photoflash Lamps and Razor Blades

In this modern day of efficiency, any problem which arises is usually solved sooner or later by some very simple method. Probably as soon as our readers see this note, one of them will call our attention to a very simple solution. What we should like to know is the best and most convenient way to dispose of burned-out Photoflash lamps. One or two may be disposed of rather easily; but what is to be done with half a hundred or more? The problem is somewhat similar to the question of what to do with old safety-razor blades. In both cases, serious injury may be caused by careless disposal in wastebaskets, rubbish cans, or rubbish piles. If the lamps are broken, much fine glass is scattered about. If they are kept intact, a sudden jolt may cause them to break. Broken lamps and razor blades can cause dangerous cuts in hands or feet. Janitors, city street cleaners, and the humble householder should not be subjected to this hazard. We shall welcome suggestions for the benefit of all those who use Photoflash Lamps—and shave.

Two Welcome Callers

Recently our good friends "Abe" Feigenbaum of the Tremont Camera Exchange, Boston, and George W. French of Bloomfield, N.J., dropped in to see us. "Abe" is well known to hundreds of discriminating pictorial photographers when it comes to the purchase or exchange of high-grade equipment. Mr. French is well known as the author of a textbook on amateur photography, as a contributor to salons and competitions, and as an experienced photographer. It is a real treat to have these men call and to be able to "talk shop" about cameras, plates, films, exposure, and so many things dear to the lovers of good photography. It is by such exchange of experiences and ideas that the interest in photography is maintained down through the years.

A Week-End at Nantucket

There are times when we believe in fairies. Two appeared not long ago in the form of an uncle and aunt who extended a cordial invitation to Mr. and Mrs. Editor to spend a week-end on the island of Nantucket, thirty miles off the coast of Massachusetts. For years Nantucket had appealed to us photographically; and, needless to say, the invitation was eagerly and thankfully accepted. Although our anticipation ran high, we were not disappointed in the pictorial opportunities which we found. The open sea, the quiet bays, the quaint little cottages, the narrow streets, the picturesque old town of Nantucket, and the miles of moorland, sand dunes, and storm-twisted scrub pine all combined to offer countless subjects for the camera. We made many exposures and thoroughly enjoyed the experience of being free to make the most of our opportunities. The only interruption which we permitted was the welcome sound of the dinner bell. Indeed, we believed in fairies; and we hope that some good fairy will make our uncle and aunt as happy as they made Mr. and Mrs. Editor. We shall not soon forget these few days of genuine freedom to enjoy photography and to rest.

Fortunately Just a Dream

We try very hard to leave our editorial problems and perplexities at the office when we go home for the day. However, at times, some particular problem will not stay at the office but insists upon going home with us. Then, when we go to bed, and should go to sleep, this demon problem sits on the foot of the bed and nags us far into the night with the question, "Well, what are you going to do about it?" On one such evening, not long ago, we finally fell asleep without solving the problem for the little demon. Apparently incensed at our ignoring him, he cast a spell upon us with the result that we dreamed many strange and unaccountable dreams. One of them stands out clearly, and we give it to our readers as we remember it.

The setting is a neat little Photographique Gifte Shoppe, or something of the kind, in a summer resort town. An agitated, nervous and very fidgety middle-aged lady enters the Shoppe carrying a folding camera. She spies a collegiate looking young man behind the camera counter and without a moment's warning begins a tirade on the subject of her camera in general and the shutter in particular. Without pausing for breath she tells the collegiate young man what she thinks of manufacturers who put such cameras on the market, about dealers who sell such cameras, and then in a final burst of angry eloquence she makes specific and detailed references to the shutter on her camera. Not being content with a scathing criticism of present-day shutters, she traces shutters and their devious ways for several generations back. All efforts of the collegiate young man to get a word in are futile. At length, apparently exhausted for lack of breath and subject material she thrusts the camera into the unwilling hands of the collegiate young man.

"Do you understand what is to be done?" asks the lady, trying to recover her poise and dignity.

"Yes, all but one thing", replies the young man nervously, holding the camera as though he had a bulldog by the neck.

"Well, what do you wish to know?" asks the lady with a bit of a glare in her eyes.

"What is a shutter on a camera?" asks the collegiate young man, eager for information.

At this thrilling moment the Editor awoke.

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LONDON LETTER

CARINE AND WILL CADBY

HIGHBROWS are wont to sneer at the common person's engrossment in that perennial subject of conversation—the weather. But the waywardness of this so-called summer is excuse enough for any amount of discussion of its shortcomings. When holiday-makers by the million sit shivering in their none too comfortable seaside lodgings, and farmers see what should be their winter keep for the stock rotting in the fields, it is small wonder that the misdeeds of our fickle climate should account for most of the conversation of at least these two classes.

We heard a more detached and philosophic visitor comparing the present weather to a naughty child—such wonderful promises of good behavior first thing in the morning to be shattered by temper and tears in an hour. "This would be lovely country in the summer", remarked another tourist, quite oblivious of the fact that it was August. Rain, thunder, cold winds, and again more rain—often an inch in the twenty-four hours—this has been our lot and portion for the last couple of months, and as we write there seems no sign of a change. Small wonder that we read enviously of the heat waves in America that have their serious death rolls, which we feel we would willingly risk for the sake of a little sunshine.

The small grain of comfort in this gloomy spell is that flowers have bloomed prodigiously and continuously. The garden has been put in cold storage, so to speak. Roses, whose life is generally so short in hot sun, last for weeks, where they are not battered by the drenching winds, and rock plants that should long ago have finished blooming are still filled with flowers.

We slow-moving English are not likely to be able to tell our friends across the water anything new about speed photography, but the demonstration of a new camera before the Academy of Sciences in Paris may be worth mention. We learn that the ordinary high-speed camera is only capable of about 250 exposures per second; but one invented by Dr. A. Magnan and M. Huguenard can achieve 2,000 to 3,200 exposures in a second. Indeed, it was demonstrated before the Academy, and wing-beats of birds and insects were clearly seen. In one film of a blowfly in flight, the wing-beats—ninety every second—could be counted quite easily.

This seems a wonderful performance, and it is anticipated that this development of high-speed photography should prove of great value in the study of aërodynamics of natural flight and its applications to aviation. But these speeds pale before Dr. Suhara's latest camera which, it is claimed, can make 60,000 photographs a second. Dr. Suhara is the chief of the Aëronautic Research Institute of Tokio Imperial University; and as some of his photographs, such as the airflow past various aërofoils, propellers, and the motion of a pistol bullet penetrating and shattering a vacuum bulb, have already been exhibited in New York, Paris, and Wiesbaden, there seems no reason to doubt the assertion.

When one sees all the smiling beauties in the illustrated press, one somehow takes for granted that complete harmony exists between photographer and model; so that it was with surprise we heard the other day of a beach battle in which the fair bathers took the law into their own hands, were very rough with the photographer who had been making snapshots of them, and, in the end, threw his camera into the sea.

The cynically minded have suggested that the photographer was punished for his sins of omission and not commission, and that it was the water nymphs he had missed and not those he had caught who mobbed him.

Having always a soft spot in our hearts for photographers, we tried to find excuses for this one. Knowing what the public, or rather the editors, wanted, he was tempted to get salable photographs, and, being perchance a lonely soul or one whose relations and friends were neither young nor beautiful, he took his chance with strangers, and suffered for it. Neither are we going to deny that he deserved all he got; for it was neither fair nor quite honest to snatch subjects like these and so steal a profit out of unwilling people.

We heard of one of these lonely photographers who was very eager to obtain a prize for some "Happy Holiday" competition, offered by a leading paper. He shrewdly chose the seaside resort most advertised in its pages, and then hoped to make friends with some cheery party staying there, and so get help to make his photographs. It sounded very practical; but the drawback was that those parties who seemed thoroughly enjoying themselves were not inclined to welcome him. He discovered, too, that when once the camera came on the scene, the fires of lively activity seemed to burn less brightly. However, to make a long story short, he returned to London and came back with some artists' models whom he had hired for a week, and who did all the smiling and "Happy Holiday" business for him and enabled him to obtain the prize. So there are more ways of getting bathing belles at their best than by snapshooting them haphazardly and against their will, and getting one's camera ducked into the bargain.

We should like to have the editorial of the August, 1931, number of PHOTO-ERA framed and hung up in every amateur photographer's room. It is such valuable truth, so tolerantly and intuitively expressed! We so often feel how snapshot workers miss just the little more than makes a photograph worth-while through being too hurried. Of course, a reflex camera has great points, but a tripod almost takes its place; indeed, we think it does more than take its place, at times. At all events, where our aim is landscape work, we need not fear its making us conspicuous; and, after all, like ostriches we can hide our heads and forget the onlookers! But all the Editor says is wise and true, and we should just like to state here that we subscribe to every word.

HERE, THERE AND EVERYWHERE

To ensure publication, announcements and reports should be sent in not later than the 5th of the preceding month.

Fort Dearborn Camera Club Moves

THE steady growth in members and achievements of the Fort Dearborn Camera Club of Chicago, situated at 537 South Dearborn Street, has necessitated larger and more modern quarters. Recently the members decided to lease a modern, more attractively situated suite of rooms in the Illinois Women's Athletic building, 111 East Pearson Street. The work of moving is under way and the Club expects to be established in its new quarters early in October. Further details with regard to the new quarters and the facilities offered will be supplied later. We congratulate the members and officers of the Fort Dearborn Camera Club on this progressive step forward and confidence in the future. Perhaps winning the PHOTO-ERA TROPHY CUP, permanently, required these larger quarters. At any rate, we wish the Club growth, prosperity, and an abundance of pictorial success in the years to come.

Photography a Misdemeanor in New York

PHOTOGRAPHY has its own trials and tribulations; but in New York another can be added in the form of a restriction prohibiting the use of cameras in public parks. In New York, not only must the photographer study his subject and light-conditions but also laws, after which he finds that he must either write or visit each Borough's Park Department and obtain a special permit. If he chooses to try his skill on the scenic beauties of Interstate Park, he must first apply to the State Park Commission. Since all these permits carry no fees, there can be no argument that any revenue is derived therefrom. However strange it may seem, everywhere you turn you will see cameras; for what picnic or hike is complete without one?

Poe's Cottage is situated in a small park near the writer's home. One Saturday he and his brother decided that the cottage would make a fine subject for a picture and set out accordingly. No sooner had the Graflex been opened up when a whistle blew and a gruff voice bellowed, "No picture-taking allowed!" Subsequent discussion brought out that one of the afore-mentioned permits would make everything all right.

Sometime after that, a visit to the Coney Island Board Walk brought a similar occurrence. On the Fourth of July we visited Interstate Park, and, finding an interesting and pleasing view of a yacht basin, set out to photograph it. Before the time of exposure could be ascertained, a rough and wholly uncalled-for sarcastic voice shouted: "Come down out of there! You're not allowed to take pictures here!" And this was on the day set aside for celebrating freedom. Well, we closed the camera and started to walk along the shore road, witnessing *en route* fifty or more cameras in unmolested use. Just to make the whole idea more complex, we also saw a group of Communists holding a quiet and orderly meeting midway between Englewood and Alpine, and, further on, one of the rocks bore the advertisement "Join the Young People's Communist League!"

Whether the size of the Graflex causes this discrimination is hard to say; but we do feel that such laws, prohibiting the making of pictures for amateur purposes, are challenged by the inscription appearing on the front of the Court of Appeals, which reads as follows: "Any law not based on wisdom is a menace to the State."

There is no pastime which affords more wholesome diversion and produces less annoyance to others than photography. To place petty restrictions on it appears not only to be uncalled for, but seems to be downright stupidity on the part of those who instigated and sponsored such regulations.

RUDOLPH C. LANG.

[We shall be glad to hear from other readers with regard to making pictures in New York. There are always two sides to a question, so it is said. We shall be glad to present them both for the information of our readers.—EDITOR.]

Society of Motion-Picture Engineers to Hold Fall Meeting at Swampscott, Mass.

THE fall meeting of the Society of Motion-Picture Engineers will be held at the New Ocean House, Swampscott, Mass., October 5 to 8, according to an announcement made by the Board of Governors.

Following the success of the convention held by the Society of Motion-Picture Engineers in Hollywood last May, the Society is planning to make the approaching convention at Swampscott just as interesting and extensive as the previous one. The Papers Committee is working hard on an attractive program of papers, and thirty-five or forty technical papers are expected to be presented, in addition to various interesting demonstrations. Many attractive features are being arranged by the Convention Committee by way of diversion for the members.

In addition to these, an exhibition of newly developed motion-picture apparatus, similar to the exhibit at the Hollywood meeting last spring, will be held. All manufacturers of equipment are invited to display their newly developed products at the convention.

The exhibit will not be of the same nature as the usual trade exhibit. There will be no booths, although each exhibit will be allotted definite space by the Apparatus Exhibits Committee and all exhibits will be arranged in one large room. All exhibition space will be furnished gratis.

The convention is scheduled to open with the

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election of new officers for the coming year. The present officers, whose terms expire in October, are as follows: J. I. Crabtree, President; K. C. D. Hickman, Vice-President; J. H. Kurlander, Secretary; H. T. Cowling, Treasurer; E. I. Sponable, Governor; and D. MacKenzie, Governor.

Everyone is invited to attend the convention regardless of whether or not he is a member of the Society. Information concerning railroad schedules, fares, and hotel rates may be obtained by writing the Society's Headquarters.

Praise for National Guard Photographic Section

In a recent communication to the Chief of the Militia Bureau, Mr. W. A. Taylor, chief of the Bureau of Plant Industry, United States Department of Agriculture, states:

"Mr. S. N. Wycoff, field supervisor of the Western Office of our Division of Blister Rust Control, has brought to my attention the aërial photographs furnished him by the 116th Photo Section, 41st Division, Washington National Guard, stationed at Felts Field, Parkwater, Wash.

"On February 14, a flight was made under adverse conditions. Guided only by a small hand map, the flight officer flew to an area of white pine blister rust infection in Idaho and obtained pictures which have been of great value to this Bureau. Other valuable pictures have also been furnished our Western Office of Blister Rust Control which could be obtained only from the air.

"Aërial photographs and mosaic maps have furnished us information which could otherwise have been obtained only by very expensive ground surveys. These maps and photographs are a valuable aid in furthering the progress of blister rust control work in the region.

"I extend my most sincere thanks for the fine spirit of co-operation shown by Major C. V. Haynes, Commandant, and the entire personnel of the 116th Photo Section in aiding the Western Office of Blister Rust Control in their work."

Remarkable Latitude of Verichrome Film

When Verichrome film was first announced to the public about three months ago, it was my privilege to talk to you and to tell you what we hoped from the new film. I concluded by saying that I thought you would like Verichrome film. Since then the film has met with an extremely favorable reception everywhere in the world, and I now know that you *do* like Verichrome film. Before it was announced the film had, of course, been tested most carefully; but "the proof of the pudding is in the eating", and the use of Verichrome film by many thousands of camera users has demonstrated some advantages which had not altogether been foreseen. Verichrome film is faster; it gives pictures of better quality, with improved highlights and more detail in the shadows; it shows none of that blurring which is called halation—all this was known. The increased speed makes it possible to make pictures in poorer light and also makes it certain that even the low-priced cameras which have small lenses will give plenty of exposure.

But what experience, and experience alone, could show was that Verichrome film takes the uncertainty out of picture-making, because in addition to its speed it has latitude—enormous latitude. It is this latitude which *ensures* the success of the picture. When the picture must be made in shadow, the speed of the Verichrome film gives excellent results; when the light is bright, the pictures are still excellent; when the whole scene is shimmering with light, on the beach or in the mountains, the latitude of the Verichrome film makes possible splendid results with the same camera used in the same way as for pictures in the shadow.

With Verichrome film there is no longer any need to feel concern as to whether the pictures will be good. Just press the button, and the Verichrome film will do the rest.—A Radio Talk by Dr. C. E. K. Mees.

Third Rochester International Salon of Photography

The success of the Rochester International Salon of Photography for the past two years, as measured by the contributions of leading pictorialists from all over the world and by the interest of the Rochester public, has encouraged its officers to expand the scope of the Salon among Rochester's civic leaders. The members of the committee for 1931–32, as announced recently by Victor Rayment, past chairman and Print Director for the coming year, are as follows: Edward G. Miner, Chairman; Raymond N. Ball and Leroy E. Snyder, Vice-Chairman; Helen S. Williams, Secretary; Erle M. Billings, Treasurer; Gertrude Herdle, Director of the Memorial Art Gallery.

Mr. Miner, the new chairman, is a leader in a number of Rochester's civic and artistic enterprises. Mr. Ball is president of one of Rochester's largest banks and vice-president in charge of finance for the University of Rochester. Mr. Snyder is assistant to the president of the Gannett Newspapers, and a candidate for a member of the City Council in the 1931 fall election. Miss Williams is in charge of the Order Department, and Mr. Billings of the Training Department for men, both of the Eastman Kodak Company.

The personnel of the Exhibition Committee is as follows: Victor Rayment, Print Director; Roger P. Leavitt, Alexander Leventon, A.R.P.S., Donald McMaster, Walter S. Meyers, Glenn E. Matthews, F.R.P.S., Dr. E. P. Wightman, F.R.P.S.

A drive will be made this fall to increase the Salon's membership, as it is considered by those sponsoring the annual exhibition that the Salon deserves a permanent place among the cultural assets of Rochester, which include organisations for the encouragement of music, drama, and art.

At the Second Salon held in December, 1930, photographs were received from twenty-three countries, and eighteen of these had prints accepted. In his annual report, Mr. Rayment states: "It is interesting to note that in an exhibition of this kind practically all the work submitted is by amateurs with whom photography is a hobby, or by professional photographers who, . . . in their leisure hours, make pictures for their own pleasure and recreation."

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This year's Salon will be held at the Memorial Art Gallery from December 4 to January 3, with the last date for receiving prints set for November 7, 1931. As in the two previous Salons, a jury of selection of international reputation will judge the pictures.

Air Corps Photographic Class Visits Rochester

Not very long ago, members of the Photographic Class from the Army Air Corps Technical School at Chanute Field, Rantoul, Ill., flew to Rochester, N.Y., to inspect the Eastman Kodak Company's great factories. During the stay of these Army fliers, Mr. George Eastman, chairman of the board of the Eastman Kodak Company—

MR. GEORGE EASTMAN TALKING TO LIEUT. GEORGE W. GODDARD, U. S. AIR CORPS

a photographic pioneer of international reputation—visited the Army's "flying darkroom". One of the airplanes, which accompanied the class on its tour through the East, was fitted up as a darkroom, and, in actual flight, pictures have been made in the air, developed and printed, and then dropped to the ground, all in a remarkably short time. It is reported that Lieut. George W. Goddard, who is director of the School of Aërial Photography at Chanute Field, is responsible in great part for the construction and equipment of this photographic plane. Mr. George Eastman was naturally very much interested and made a thorough inspection of the "flying darkroom". In the illustration, Mr. Eastman is shown talking it over with Lieutenant Goddard, while members of the class are grouped about him.

This picture and reference to the "flying darkroom" and to Lieutenant Goddard are of special interest to us, owing to the fact that we have been on military duty at Chanute Field and have received instruction in aërial photography at the Air Corps Photographic School, of which Lieutenant Goddard is now the head.

Incidentally, he is responsible for the remarkably interesting illustrated article in the *National Geographic Magazine*, a few months ago, in connection with his aërial photographic work in the Philippine Islands. Lieutenant Goddard is deeply interested in all branches of aërial photography, and he has succeeded in bringing about a number of radical improvements in the technique of aërial photography. It is a matter of record that modern aërial photography owes much of its effectiveness and equipment to the study and personal inventive skill of Air Corps officers and enlisted men, who have done pioneer work for the benefit of aërial photography in general.

An Exceptional Photograph

A PHOTOGRAPH was made recently by a graduate of the New York Institute of Photography which may truly be termed unique.

Mr. D. S. Leach, of Rumford, Maine, made a photograph of the largest paper machine in the world for the Oxford Paper Co. This machine is 180 feet long and 18 feet high. It is situated in a building of such dimensions that the maximum possible distance for the camera was less than 20 feet. The Paper Company wanted a photograph of this machine as it was installed, and for this purpose called in a number of commercial photographers from the larger cities of New England only to have all of them refuse to undertake the work.

Mr. Leach, who only completed his course in the New York Institute of Photography a short

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time ago, undertook to make the photograph. Acting upon a system of precedure outlined for him by the Service Department of the New York Institute of Photography, Mr. Leach made fifty-two 8 x 10 negatives, each one showing a portion of the machine. These separate prints were then assembled in the manner used in assembling an aërial mosaic map. A complete original composite photograph was eleven feet long and sixteen inches high. This was then copied upon seven 8 x 10 negatives resulting in a final print six feet long and eight inches high showing the entire machine as it stands without distortion.

A representative of the Eastman Kodak Company told Mr. Leach that this was the largest interior picture he has ever seen in his thirty-six years of experience in dealing with photographers. As far as is known, this is a feat which has never been duplicated at any time or place and that it should have been successfully done by a man young in the business, and only shortly after completing a course of instruction, is truly remarkable.

The New York Institute of Photography makes a practice of assisting its graduates throughout the world in coping with unusual problems of this kind. They will be glad to send full information regarding their service and instruction to anyone addressing an inquiry to the Institute at 10 West 33d Street, New York City.

Using Old Plates to Good Advantage

Some amateur photographers who use a plate camera 4 x 5 or larger probably have numerous plates which they have no further use for, since the manufacturers do not take them back. It is a shame to throw them away, when they can be used to some good advantage.

I had some special pictures I wanted to frame; so I went to a store and asked the man to sell me some picture-moulding. "Nothing doing"—if I wanted them framed I had to leave the job with him at the rate of $1.50 for each 5 x 7 size picture. I went home and thought it over, as I didn't want to spend that much on frames; so that is when the old plates came in handy.

Soak the old plates in hot water, then scrape the emulsion off with an old razor blade and make them clean. Then get some Hall's Styk-um-Phast gummed back cloth—it comes in ten different colors, costing about 25 cents for ten yards—and we are all set for the picture-framing

Take one glass, as in Figure 1, and stick the gummed cloth, with about one quarter-inch margin all around. To do this, cut the cloth, if it is a 5 x 7, two pieces five inches long and two pieces seven inches long, and stick on the sides of the glass.

Figure 2.—Take the other glass and lay it on the top of the other, and gum one side only. Then open them apart just as much as to set the photograph. Gum all sides; you then have a pretty little frame which is dustproof and a good way to frame colored photographs.

Figure 3.—Get a small piece of thin cord—such as is used for Christmas parcels—by which to hang the photograph. About halfway down lay the cord across the plate and stick it down with the gummed cloth.

Thomas Scott.

Orymca Camera Club

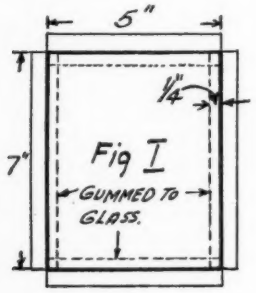
The Orymca Camera Club opened the season's activities at a meeting at its Y. M. C. A. home at Orange, N.J., September 10, 1931. It was attended by Mr. Paul L. Anderson, who addressed the group. The meeting was extremely interesting and inspiring. A class group was formed which will meet to study and practice the Carbon process.

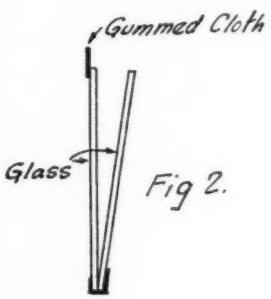
This club has shown great improvement in its recent exhibitions, and the coming season is expected to develop the group still farther.

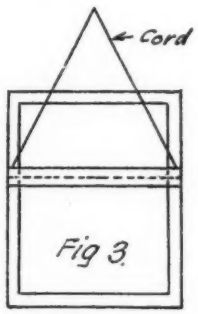
Two New B. & L. Folders

Two very attractive new folders have arrived from the Bausch & Lomb Optical Company, Rochester, N.Y., which we are very glad to bring to our readers' attention. One is devoted to commercial lenses and the other to portrait lenses. Each is illustrated by means of splendid examples of commercial and portrait work done by the lenses described in the folder. Bausch & Lomb lenses are well known to amateur and professional photographers. The new folders will do much to bring these lenses to the attention of those who are considering the purchase of a high-grade anastigmat lens. We suggest that our readers write for these folders without delay as there will surely be a demand for them.

We cannot help thinking of the great improvement which has been made in photographic advertising during the past fifteen years.







USING OLD PLATES TO GOOD ADVANTAGE — THOMAS SCOTT

WHAT'S NEW?

A department reserved exclusively for the announcement and description of new photographic goods and services.

New 1-Inch F/3.5 Lens and Waist-Level Viewfinder Are Announced for Filmo Cameras

Two interesting new accessories for Filmo 70 cameras are announced by Bell & Howell. One is a new Cooke 1-inch F/3.5 focusing-mount lens, and the other a waist-level viewfinder.

The new lens is radically different from the former focusing-mount lens for this type of camera. The principal feature is that the focusing and diaphragm dials project out sufficiently into the field of the finder to enable the user to observe his focusing graduations as well as the diaphragm graduations when looking through the finder tube.

The movie maker thus has before his eye a constant reminder of make sure that the distance setting has been changed between shots if the distance has been changed. Quite often, for example, after a close-up has been made, the photographer forgets to change his focus when he shoots a picture at normal distances. This new mount gives him visual notice to make the necessary changes.

Another feature of the new lens is that the front cell is non-rotating. When the focusing diaphragm is turned, the whole lens moves on a spiral without revolving the glass elements. This makes it possible to employ all the attachments which have been developed for the 1-inch F/3.5 lens, such as the distorter, duplicator, duplex filter, and sky filters.

By means of three small screws the graduated portion of the mount can be turned to line up with the finder regardless of the position in which the graduations happen to be when the lens is screwed into the camera.

The second new accessory, the waist-level viewfinder, enables the Filmo 70 camera user to determine his picture areas while holding his camera at any level than the eye. This facilitates taking those interesting usual-angle scenes, such as "worm's eye views," without assuming an uncomfortable position. The new unit is not designed to replace the regular viewfinder, which is better fitter for general use, but merely to supplement it when special scenes are to be taken. It consists of two lenses and a prism mounted in a suitable holder which easily attaches to the camera door just above the regular finder. The field is the same as that covered by a one-inch lens; but fields of other lenses of longer focal length can be etched on the face of the prism.

To attach the finder for the first time requires the use of a screw driver and possibly a file; but any one can do this work and do it quickly. After this first simple adjustment, to attach or detach the finder requires only a second or so.

The dealers in amateur motion-picture equipment will be glad to show these new accessories.

The New Rolleiflex 1⅝ x 1⅝ Size

The "Small Rolleiflex" is equipped with a mirror-reflex-finder, in principle like that in the Rolleiflex 2¼ x 2¼, with fixed mirror. The magnifier, however, springs automatically into position for use, when opening the focusing hood. Accordingly, one sees both the screen-image, and the magnified portion in the center. The lid of the focusing hood can be used as Ikonometer—peep-sight-finder. A small concave mirror guarantees exact parallelism of both finder-picture and the picture, exactly as it appears on the film. The groundglass screen is provided with fine cross lines, which are more reliable than any water-level.

The operation of the Compur Shutter has been perfected in a very remarkable manner. A single lever is provided, which sets the shutter, when it is moved up, and releasing it, when pressed downwards. Thus the shutter is both set and released with a pressure of the thumb.

The most important innovation, however, is found with the film carrier. The winding of the film takes place entirely independent of the usual film window. A neat handle winds the film quite automatically, controlled by numbers on the side of the camera. This mechanism works very precisely, guaranteeing quick, convenient operating. The winding handle can be folded away, when not in use.

The brilliantly illuminated groundglass picture almost automatically helps you find and choose suitable subjects, eliminating the waste of time and material on subjects not worth while. Furthermore, the mirror reflex mechanism makes it possible to compose the subject on the film so exactly and focus so accurately, that the field of vision is utilised 100 per cent. By these typical features of the Rolleiflex principle the following is attained:

The exposures are of a size which would make an essentially larger size necessary in the case of cameras without groundglass screen.

The virtually 100 per cent. yield of the Rollieflex camera makes Rolleiflex negatives among the cheapest. The 1⅝ x 1⅝ picture size permits 12 exposures to be made from the standard Vest Pocket 1⅝ x 2½ films. Thus not too many, nor too few. The square size in comparison with the rectangular one is more practical and universal; it is also necessary for cameras of the mirror reflex type.

The weight is approximately 19 ounces; height, 4¼ inches; width, 2⅝ inches, and depth, 3 inches; focal length of lens, 6 cm. and speed of the finder-anastigmat, F/2.8. Further particulars and descriptive matter may be obtained from Burleigh Brooks, 127 West 42nd Street, New York City.

Two illustrations sent to us direct from Germany had not arrived at the time of going to press with this issue. We hope to have these illustrations for a later number.

XUM

THE AMATEUR KINEMATOGRAPHER

HERBERT C. McKAY, F.R.P.S.

The Great Unseen World

PHOTOGRAPHERS—those who are willing to spend a few moments in learning some of the truths about their chosen avocation—know that human sight is closely, and mercifully, limited to a single octave in the gigantic scale of cosmic vibration. We may call this a lateral limitation. Upon one side stretch the waves of heat, radio, and general radio activity; upon the other, the ultra-violet, the X-ray, the cosmic rays, and others. This is a scale which extends from wave-lengths miles in length upon the one hand, and upon the other to dimensions of divided millionths of an inch! An "eye" sensitive to the full scale would pour into our minds a confusion of stimuli which would drive us mad within a few moments of time.

However, this is but a single dimensional limitation. The perception of the eye is not only limited in this direction. It is a truly three-dimensional limitation, and we find that, in the possible stimuli of the universe, the reactions of the eye are confined to those occurring within a tiny cube. Let us see how this is true.

We already have our "frequency" limitation established, which permits us to see only "visible" light. But cutting off the front and back of this narrow strip, we have the limitation of time. We know that glaciers move, but the eye does not appreciate this motion. We also know that when a rifle is fired the bullet speeds toward its mark, but we cannot see it! A motion of one foot an hour is not perceptible, nor is a speed of a mile per second! What of the intermediate speeds? The exact limits depend upon the individual, and just the kind of perception we may accept as "sight". We cannot actually perceive details of an object which moves past us at a distance of one yard, going at the rate of ten miles per hour! Oh, certainly, we "see" it, but we do not see details. We only see a blur! If it is an automobile, we see a *familiar* blur which the brain translates in the terms of previous automobiles we have seen, and we say we "see" it plainly—but we don't.

And so we have limitations in two dimensions. The top and bottom of our reactional space is limited by size. It is very difficult to see a sphere whose diameter is one one-hundredth of an inch, and if we reduce this by ten we pass the object definitely into the invisible. Of course, a spot of light 1/1000 of an inch in diameter may be seen against a black background, but this is light contrast and we see, not the object, but merely the radiation from it. Even at 1/100 we cannot say that the object is a sphere, cube, prism, pyramid, or irregular mass! What then can we say of sight of such objects? On the contrary, there are objects so large that we cannot "see" them. Perhaps the most familiar object is the Earth itself. No, we absolutely cannot see it. We may perceive it, but our perception is tremendously distorted! Perception which gives a false impression cannot be said to be sight! If we depend upon our sense of sight we say that the Earth is a rough plane about which the heavens revolve! And so we have the third dimensional limitation of sight.

And what of the motion-picture camera? Perhaps one of the greatest miracles of science has been that by which the camera has pushed back these limitations in every one of the six dimensions!

First, let us take the frequency itself! We know that the photographic emulsion can be made to react *under control* to the ultra-violet and to the infra-red waves which the eye cannot see, and to the X-rays.

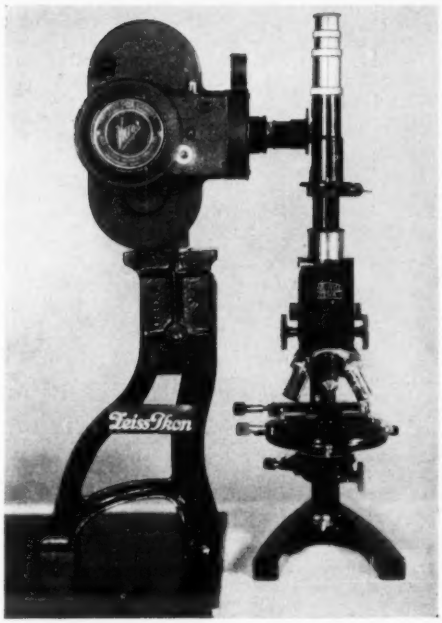
And what of time? There the conquest is more spectacular than in the case of the frequencies. By means of the slow-motion camera we see the bullet pushing in the side of a soap bubble, and then the bubble slowly cracks and bursts while the bullet floats lightly along its way. The time-condensation camera, on the contrary, will show us the seedling thrusting its way upward through the soil and developing into a full-grown plant within a few moments.

The limits in the third dimension have been less spectacular but more stupendous; for here we have a power which has enabled us to lay bare the very secrets of the universe!

It is no secret that photography is revealing facts about the stars which visual observation could never reveal, regardless of the size of any telescope which might be built. But with all of these we are not concerned at this time. Let us consider the sixth and last of the limits which have been forced backward.

By the means of that artificial, auxiliary eye which we call the microscope, the object of 1/1000-inch diameter which we could barely discern becomes a complex organism whose smallest details are rendered visible to us. Here we have reached what may be an absolute limit, for we have means for investigating objects as small as light-waves themselves. Smaller objects than this must remain invisible, for the light-waves pass them without the reflection necessary for "sight". Perhaps we may penetrate still further into these mysteries by the use of shorter and shorter waves; but the wonder world of the microscope lies not in these extreme regions of ultra-microscopy but in that region where moderate magnifications of from 100 to 500 times reveal tiny but beautifully complex creatures, which it is, in truth, a pleasure, to study.

As has been mentioned in these columns, microscopy as a hobby is common in Europe, but has not become accepted widely in this country. It is being slowly introduced as a pastime for children with small instruments of moderate correction; but the real pleasure of an adequate instrument, with fully corrected lenses—one which



THE KINE PHOTOMICROGRAPHIC EQUIPMENT
HERBERT C. MC KAY

reveals this hidden world in all of the crystal-clear detail of direct vision—is one which once experienced is never forgotten. In fact, cultural microscopy is a pleasure-study which can be recommended to every photographer. There is not only the actual pleasure of the work to be derived—there is the thought of doing something really worth while, of achieving an accomplishment, of securing a broader understanding of nature, of the universe, and of the meaning of life. There is no philosophy in the collective libraries of the world which can compare with that magnificent philosophy brought to each one of us individually by the microscope—and the telescope.

The one disappointment which we experience in this work is our inability to preserve some of the exquisite forms which we find, to study them and to display them to our friends. Here is now something which we may replace at will to study and to exhibit. Each new slide reveals a new world. Each discovery must be studied *then* and *there*. Perhaps, in fact quite probably, an exact duplicate will never be seen. Some of these are so beautiful that their forms should be preserved. Here again we call in the camera, and upon the magic ribbon we keep a faithful record of the form and motion of these fanciful creatures, hundreds of thousands of which could be carried in an ordinary fountain pen!

Molds, scum, stagnant water from pools—in fact, from almost any odd corner of natural earth or water may be garnered treasure. A droplet of water upon a slide placed under the microscope shows them to us. But how may this be transferred to the film?

The camera you have. The lens—well, here is a real advantage. No lens is used. The microscope becomes the lens-system for the camera. The microscope and camera may be directly connected, but, for satisfactory results, observation should be possible during the filming.

The light-intensity necessary for motion photography is far greater than that necessary for visual observation. So we place over the microscope tube a prism which is so silvered that the great portion of light is reflected at right angles into the camera, and a very little is allowed to pass so that it may enter the eye. This prism is mounted in a tube which also carries supplementary visual lenses and which also has a side tube which keeps extraneous light from falling upon the film. This device is all that is necessary in addition to the conventional microscope and camera.

An arc lamp is used for illumination, the light being passed through a flask of water to prevent too much heat from reaching the objects upon the slide, which would be cooked by it. The prism is attached to the microscope and the camera, and when the object comes into the field of view, the camera is started, and we have a permanent record of the object. In view of the great pleasure to be derived from this work, why not try it?

MAKING KINE PHOTOMICROGRAPHS
HERBERT C. MC KAY

XUM

Those Terrible Movies

INSTEAD of boring your friends with uninteresting films of commonplace subjects, why not make your camera provide real entertainment? It can be done!

"I don't want to go to the Smith's! All evening long he fusses with that movie machine, showing dim, blurred pictures of that impossible boy of his!" How many wives say something similar—how many husbands clothe the same idea in far stronger language! Amateur motion-pictures have ceased to be an attraction, and have dropped into that most ignominious position—a common bore!

This is certainly undeserved by the most versatile, the most potentially fascinating amateur art we have. The fault lies, not with the art, but with the artists(?). It is not enough to preach cinematics, not enough to teach technique. The fond father may become a highly capable cinematic artist, but he will persist upon wasting his talent upon filming Junior.

Every family should certainly keep an animated album of family history, but this delectable tidbit should be strictly reserved for family consumption. The enemies of amateur movies should by all means erect a heroic statue to Junior, for that little imp is directly and almost solely responsible for making the name of amateur movies anathema!

But how is Junior to be excluded from the screen in favor of more entertaining subjects? Easy! The camera will supply you with films which will drag the bridge fiend from his table and even break up a game of anagrams. Just join the ranks of Guessit fans, and you will bid farewell to ennui for at least a year.

No, you are not to be let into the secret just yet. You need a room which is just faintly enough illuminated to enable the occupants to see each other comfortably. The light should be red, so that the white light upon the screen will appear to be brighter. For a truly elaborate party, each guest is provided with a small board, a sheet of paper, a pencil, and one of those little clamp-on lamps with a hooded bulb.

The game, if you care to call it such, has the element of the movies; but it also allows the conversation and repartee which is so essential for a really enjoyable evening, and eliminates the strain of the I-am-being-quiet-because-I-have-to feeling so noticeable in most amateur movie evenings.

The game is absurdly simple. The real ingenuity is shown in preparing the film. The film has a simple introductory title which reads:

GUESSIT

The main title is:

You will be shown fifteen objects in motion, each lasting for about ten seconds, and each bearing a number. Write upon your score pad the name of the object. The highest number of correct guesses wins.

No, the object is not to show Tibetan prayer wheels, nor bloodstones from the Kentucky mountains. It is essential that every object shown be thoroughly familiar to every member of your audience.

The films are made by shooting the most common objects under the most unusual circumstances, or from brand-new angles. For example, let us take a candle. Light the candle, let the candle burn until it is only about a half inch high, burning in a puddle of wax. Now, with the camera held directly above the candle at a distance of about three feet, shoot a ten-second shot. Another shot is made by scraping the lead of a pencil until a little pile of graphite is obtained. The pencil point is now used to stir this pile of graphite while photographed with a long-focus lens at abnormal extension, so that the point of the pencil fills the frame. A cube of sugar with water dropping upon it from a soda straw and photographed close enough to fill the frame is a good one. These shots are made with a telephoto lens with a tube extension.

The camera is laid upon its side upon a rug and a shot is made at two feet or closer of the nozzle of the vacuum cleaner, passing the lens back and forth. A shot made by placing the camera upon its side, flat upon the ground, and shooting under your automobile, will fool the wisest. Open one side of your bread toaster, shoot through the glowing grid at the bread just turning brown. Fill the frame with a portion of the bread slice and see if anyone guesses correctly. A big close-up of the lead being forced from a mechanical pencil is hardly recognisable upon the screen, while a straight-up shot of the family cat perched upon a post will be unrecognisable.

We are used to airplane views; but stack three or four golf clubs, as rifles are stacked in the army, then get above them, and shoot straight down—the most ardent golfer will not recognise the implements of his passion. You may even include a ball for a "key" without making it too easy.

Do you want an easy one which will stump everyone? Photograph your finger nail so that it fills the frame entirely. Round out the film with an end-on view of a lighted cigar, or even the cigar in process of being lighted. Make it big enough and you need not fear detection.

The list might be carried on to a tiresome length, but enough suggestions have been made to give you the idea. To be sure, it will be easy to shoot these suggested subjects; but, after seeing them once, recognition is naturally very easy. The point is for you to discover new and original subjects which will keep your friends guessing.

An added interest is to be found in this game by making it a double-barreled contest. In such case a group of amateur cameramen each make an individual Guessit film. These films are shown upon successive evenings. The players score in the usual manner by having the greatest number of correct guesses winning, while the film which gives rise to the lowest number of correct answers is adjudged the winning film. Such a contest will revive a dead ciné club in short order, and the activity will keep interest running at fever heat through what might be an otherwise dead winter.

The Guessit film should have the shots separated by short titles, each one consisting only of the number of the shot which is to follow.

After each shot is projected—that is, when the next consecutive number title appears upon the screen—the projector is stopped and each player is given fifteen seconds to make his entry upon his score pad. After the fifteen seconds, the next shot is projected, and so forth.

When the entire film of one hundred feet has been projected, the film is rewound. Projection is started again, and, after each shot is projected,

the projector is stopped and each player in turn is called upon to announce his guess and give his reasons for it. This is the time when the really hilarious fun begins. Quite often the correct identification of the shot will meet with the greatest amount of derision from the other players.

Curiosity is maintained by projecting the film through, without comment by the host. Argument will rise high, and interest will be maintained. After this projection, the film is run a third time, and this time the host announces the identity of each shot *before* it appears upon the screen, stating the angle from which it was made or other facts which will enable the players to recognise the identity. This is the opportunity for the correct players to obtain their revenge for the gibes they endured during the second projection.

Carelessly made, Guessit will only serve to keep amateur movies in the category of major bores; but a film which is really clever in concept and execution will prove an entertainment factor of surprising satisfaction.

This is your chance to show your friends something entirely different in the line of home movies, and one which they cannot resist. All elements of puzzling familiarity, competitive trial, matching wit, and unalloyed fun are present. Moreover, there is the possibility of group competition, which is lacking in cross-word puzzles and "Can-you-tell-me" competition. There is action, which anagrams cannot supply, and that supreme virtue—novelty!

Motion-Picture Teaches Beach Safety

"Beach Safety Don'ts" is the title of a particularly creditable 16-millimeter safety film which has just been produced by the Los Angeles Playground and Recreation Department. The picture has for its purpose the promotion of complete safety at the Los Angeles municipal beaches—combating rip tides, and so on—and was made by members of the Department with a Bell & Howell Filmo movie camera which was recently purchased, together with a projector, for showing this and other 16-millimeter pictures on subjects having to do with the Department's activities.

"Beach Safety Don'ts" consists of three reels of four hundred feet of film each. It was shown first in one of the local stores, which carried a display advertisement in the Los Angeles papers announcing that the picture was to be seen free of charge in its exposition hall. This publicity got the film off to a fine start.

It is the intention of the Playground and Recreation Department to show this and other 16-millimeter films, which it plans to produce, in the thirty playgrounds maintained by the Department in various parts of the city. These playgrounds have community houses in connection with them, and pictures will be shown in these houses. Plans are being made to show "Beach Safety Don'ts" in the Los Angeles county schools and also in the San Diego city schools.

It is of interest to note that safety films have not enjoyed showings in schools comparable to movies on other subjects, although safety lends itself admirably to the making of films which would be distinctly worth while for school use. According to a recent report, issued by the United States Department of Commerce, less than .03 of one per cent of the motion-picture showings in schools are on safety subjects. In 517 schools, of 44,186 movie showings, only twelve had to do with safety.

Possibly one of the principal reasons for this is the fact that a sufficient volume of safety films has not been made available in 16-millimeter; but activities like those in Los Angeles may point the way to a remedy of the situation. The making of 16-millimeter films is now easily accomplished by amateur movie-makers, and arrangements may soon be worked out so that schools may be supplied with 16-millimeter pictures on safety, made by such organisations as the Los Angeles department group. The schools unquestionably present a tremendous opportunity for teaching safety via movies, and efforts in this direction will pay large returns.

Symposium on 16-mm. Sound Film to be Feature of Fall S. M. P. E. Convention

An extensive symposium on the problems of 16-mm. sound films will be one of the features of the Fall Meeting of the Society of Motion-Picture Engineers to be held at the New Ocean House, Swampscott, Mass., October 5–8, 1931.

Some of the papers to be given in this symposium to be held on Monday afternoon of the meeting are:—"Description of the Educational Film Experiment in Washington", by Glenn Griswold of the Fox Film Corporation; "Advantages of 16-mm. Continuous Projectors", by J. L. Spence and J. F. Leventhal of the Akeley Camera Company; "16-mm. Optical Systems", by Allan Cook of Bausch & Lomb; "Advantages of 16-mm. Super Panchromatic Film for Educational and Medical Films", by Schwartz of the University of Rochester and Tuttle of Eastman Kodak; "16-mm. Sound on Film Dimensions", by R. T. May of R. C. A. Victor.

Many other papers dealing with many branches of the industry will be read during the convention. On Tuesday morning, Dr. H. E. Ives of Bell Telephone Laboratories will read the paper, "The Projection of Motion-Pictures in Relief". H. E. Edgerton of the Massachusetts Institute of Technology will deliver a paper on "The High-Speed Stroboscope". An open forum will be held among leading engineers on the subject of "Service to Producers".

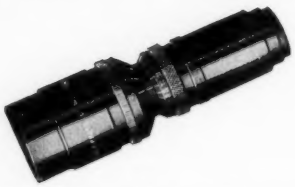
On Tuesday afternoon three papers will be delivered on photographic subjects by experts of the Bureau of Standards.

Wednesday morning, H. A. Frederick of Bell Telephone Laboratories will read a paper on "Vertical Cut Wax Recording". Another paper will be delivered regarding the new Bell & Howell Printer.

Thursday morning a paper will be given which describes in detail all of the many unique installations in the new Los Angeles Theatre, including a description of the vacuum tube light control and public address systems. Other papers to be read include "Theatre Design and Acoustic Treatment", by Ben Schlanger and V. A. Schlenker; "Résumé of International Photographic Congress at Dresden", by Dr. S. E. Sheppard; and a paper by N. D. Golden of the Motion-Picture Division of the Department of Commerce.

XUM

MAKE FOOTBALL MOVIES WITH A WOLLENSAK



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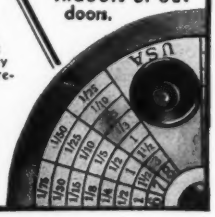

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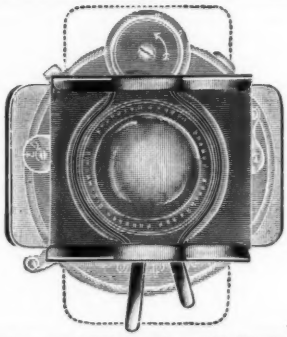

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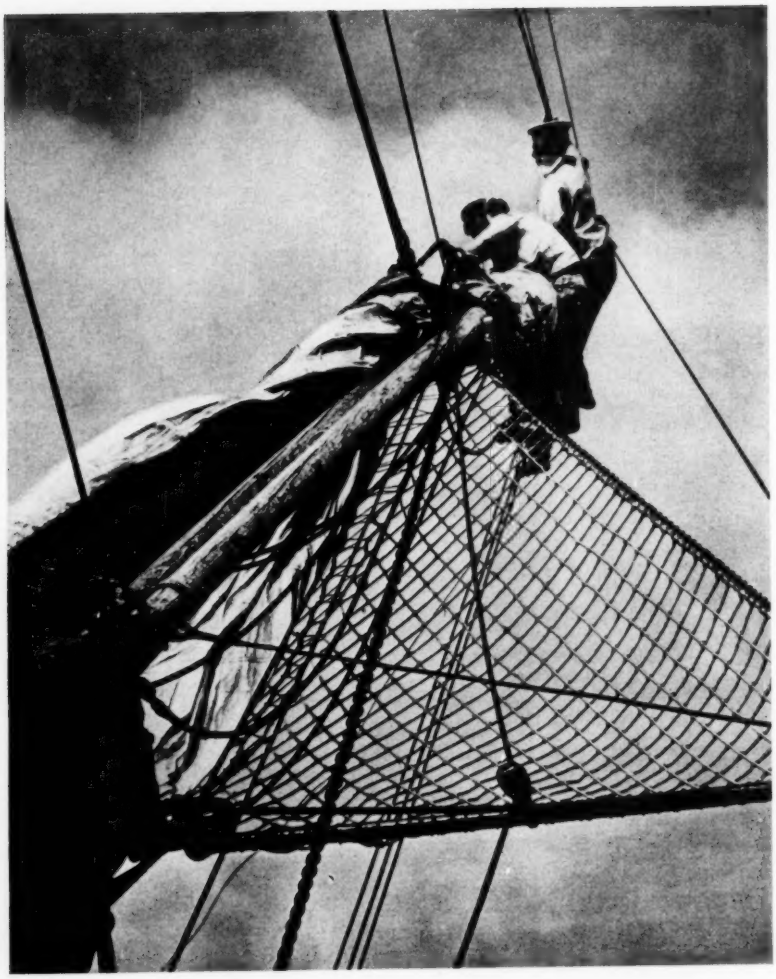

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